the American Perfumer and ESSENTIAL OIL REVIEW

AUGUST 1949

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Published monthly by The Moore Publishing Company, Inc. Publication office, 8 Harmony Place, Brattleboro, Vt. Editorial and Executive Offices: 9 East 38th St., New York 16, N. Y. Subscription rates: U.S.A. and possessions $3.00 one year; 30 cents per copy. Canada $3.00 one year; Foreign $5.00 one year. Volume 54, No. 2. Entered as second class matter June 18, 1948, at the Post Office at Brattleboro, Vt., under Act of March 3, 1879.

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CONTENTS · AUGUST 1949

REGULAR FEATURES

PACIFIC COAST REPRESENTATIVE: NED BRYDONE-JACK, 714 West Olympic Blvd., Los Angeles 15, California . . . Western Office, Room 1328 Peoples Gas Bldg., Chicago 3, Ill.

SUBSCRIPTION RATES: U.S.A. and Possessions and Canada, $3.00 one year; 30 cents per copy. Foreign, $5.00 one year. Entered as second class matter, June 18, 1948, at the Post Office at Brattleboro, Vt., under act of March 3, 1879. Published monthly by Moore Publishing Company, Inc. Publication Office: 8 Harmony Place, Brattleboro, Vt., U.S.A. Editorial and Executive Offices: 9 East 38th St., New York 16, N.Y. J. H. MOORE, President; F. C. KENDALL, Vice President and Editorial Director; J. H. MOORE, JR., Secretary and Treasurer; HARLAND J. WRIGHT, Vice President and General Manager; MARC MACCOLLUM, Vice President; R. R. ROUNTREE, Circulation Director.

Moore Publishing Co., Inc., is publisher also of *Advertising & Selling, American Printer, Drycleaning Industries, Gas Age, Gas Appliance Merchandising, Industrial Gas, LP-Gas, Laundry Age, Laundryman.*

Cable Address: Robinpub, New York
Volume 54, Number 2

Editorial Comment

That Excise Tax

The possibility of the repeal, or reduction, of the 20 per cent excise tax, at this session of Congress, is very much up in the air.

Depending upon the individual's temperament, chances had been running from good to poor, with most insiders giving it a 50-50 chance. Now with Truman's report on the state of the Nation the picture may not be even that rosy. Kruckman, in Washington Panorama, this issue, doesn't give it a prayer. Hope he's wrong.

Why Make Them Guess

Tastes change with time and with the Season, but Floral fragrances are the good old standbys in perfumes. While the bouquet is popular, most people have a preference for an individual flower. Why not, Mr. Perfume Manufacturer, inform the buying public of the dominating note in your floral perfume. If it's rose why not say so in your advertising. You might find that you will make some extra sales. It's worth a try.

On Inventories

The war came, some people managed to get their hands on bottles and alcohol and went into the perfume business. They found it good. The war ended, essential oils started coming in, everybody loaded up until stockrooms could hold no more, business slowed up and some of the new people left. Those that stayed worked away at inventories while prices of raw materials went down and down. Inventories are now worked off but buying still continues from hand to mouth, or perhaps batch-to-batch would be more accurate. Now prices have pretty well reached their normal level. Why not return to normal buying habits? It would be a lot easier for all concerned.

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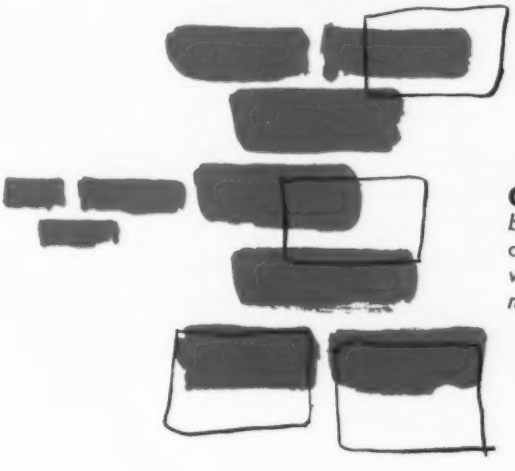

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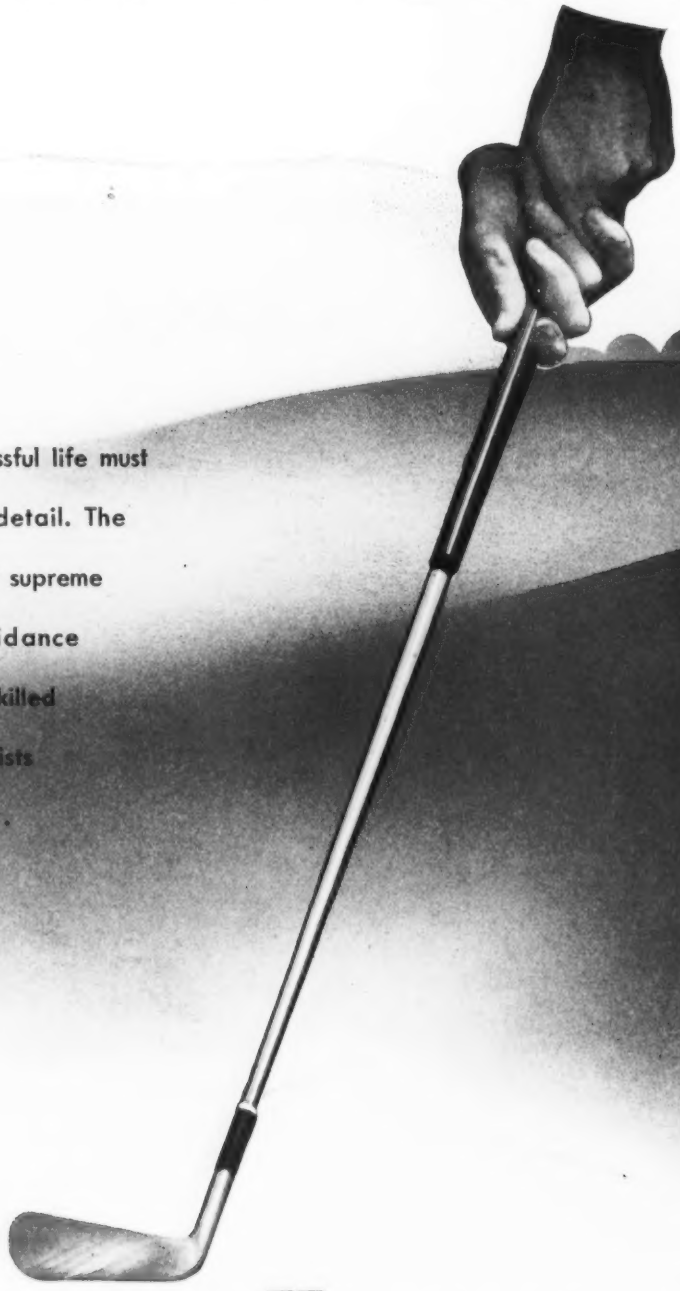

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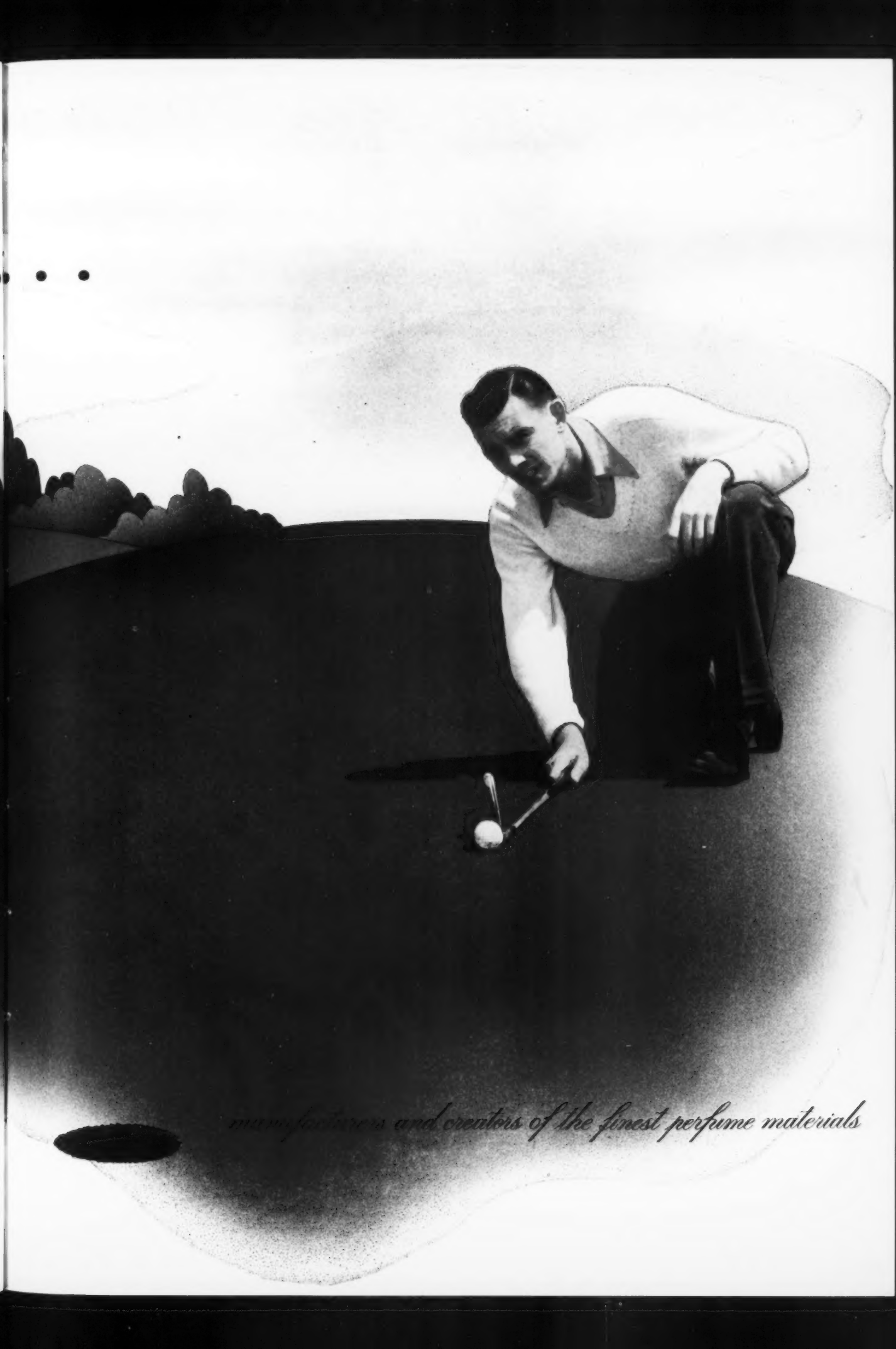
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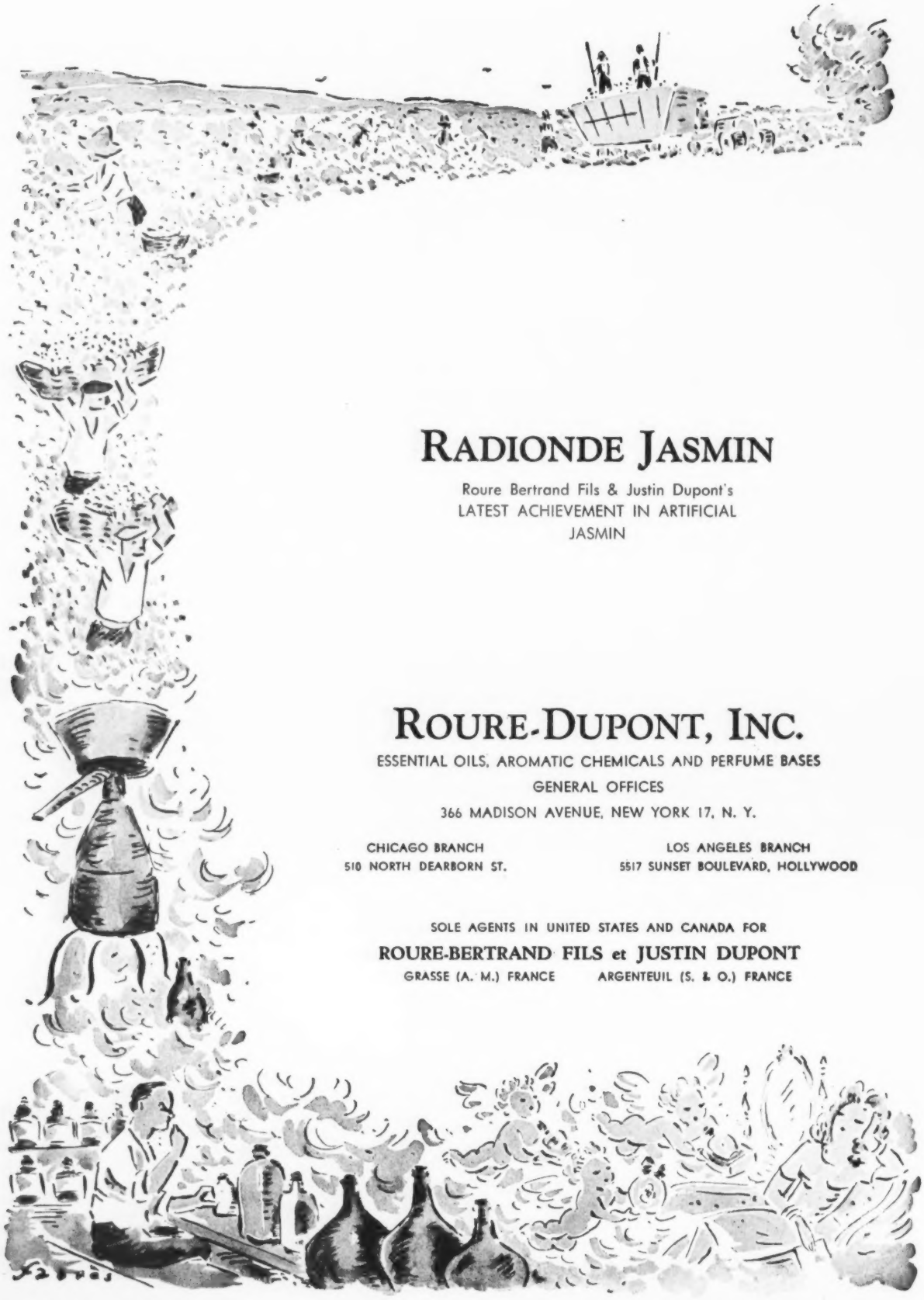

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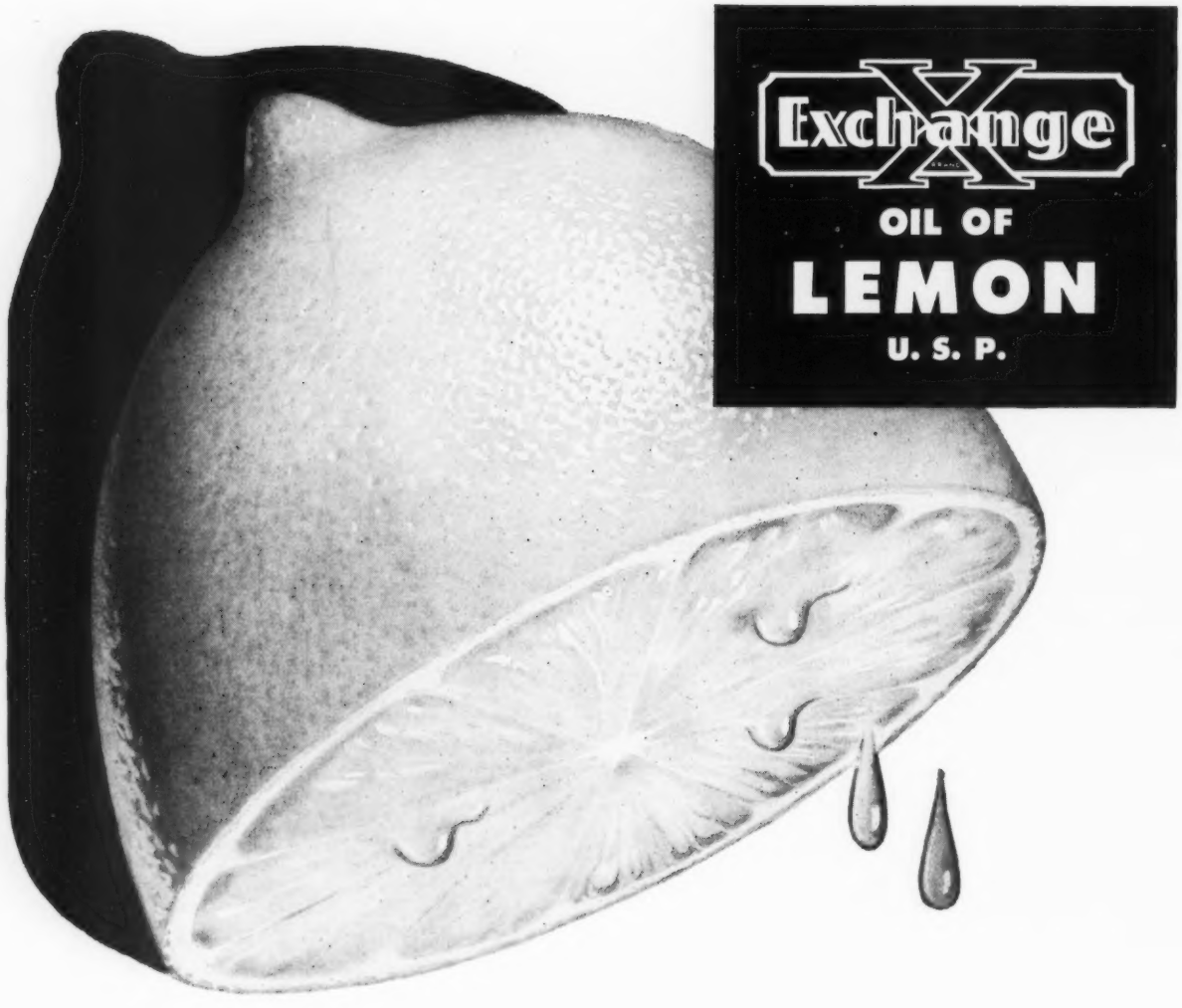

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Desiderata

by MAISON G. DENAVARRE

M. G. DeNavarre at work in his laboratory

EMULSION FORMULATION

At the last meeting of the Society of Cosmetic Chemists, Hollenberg gave an address on "Practical Aspects of Emulsion Formulation." The sandwich offered was a very good one; the bread was of the right thickness and there was plenty of meat with nice crisp lettuce, butter, etc. The only thing that this writer didn't agree with was the bread. White bread was offered and he wanted whole wheat.

Perhaps Hollenberg was misunderstood, but in his introduction to the meat of the sandwich, some statements were made that added up in essence to the amount and valueless nature of material published on emulsions—applicable to cosmetics, whether of a practical or theoretical nature, was so great that little attention should be paid to it. I disagree.

There is much to be found in the purely theoretical aspects of the emulsion science. True, much of the published data deals with emulsions of benzene and other pure chemical compounds which is not directly translatable into cosmetics, for in the case of cosmetics, one uses few pure substances. (By pure is meant straight chemicals. Most materials are mixtures, as is mineral oil, beeswax, lanolin, etc.) Even so, there is applicable theory in the pure science of emulsions.

When one comes to the practical approach, there is a plethora of formulas published by various authors and from the technical service departments of the numerous suppliers of cosmetic materials. To say that this material does not produce inspiration, is a gross understatement. It is true that some of the formulas may not be perfected to the degree that one might like. It is similarly true that the same formula in the hands of different chemists will result in products of varying degrees of elegance and stability. However, every well-posted cosmetic chemist will admit that he scans carefully formulas submitted by supply houses and those appearing in the trade journals because he finds in them, from time to time, gems of ideas. In the last ten years, in particular, the supply houses have given out countless formulas that needed little if any elaboration before putting them into production and to these houses, this department takes the opportunity of acknowledging their great contribution to the general knowledge of cosmetics.

Perhaps Hollenberg did not mean it quite this way, and if so, I shall be the first to apologize because the balance of his address was so full of meat that it overshadowed his introductory remarks. Even so, I just can't let the remarks go by unchallenged if he said what I thought he did.

CURL AND COLOR

Following up colors in detergents, it is interesting to note that one Eastern manufacturer has conceived a product that both color rinses the hair (so that the tint lasts between shampoos) and at the same time it waves the hair. This department hasn't seen the product, but if it lives up to its claims, here is certainly a novelty. Novel in the sense of a new development, not in the sense of a gadget. The industry is really progressing.

CHOLESTEROL AND DANDRUFF

It has been the assumption that the presence of cholesterol or related sterols in the human sebum and the skin would make it desirable to include sterol containing substances in cosmetic creams. Whether this reasoning is correct or not can be argued in various ways. Probably the best proof of the correctness of such thinking is that the skin appears to be softened or lubricated by creams containing such materials of which lanolin is the best known. This writer has not seen any specific scientific data to either support or disprove such a belief.

It was, therefore, logical to assume that a dry scalp or a scalp having a lot of dandruff would be benifited by products containing cholesterol. In the early thirties, some German publications showed formulas containing cholesterol and lecithin in scalp lotions. Much good was claimed for these combinations.

However, off and on, there have been indications that cholesterol may *not* be as beneficial as it was thought to be. In this writer's experience, there were a number of times when the point came up, but there was insufficient proof to prove the point. In fact, there is still insufficient proof to show that

cholesterol is contra-indicated in cases of dandruff.

Recently Butcher & Parnell (*J. Invest. Dermatol.* **9**, *67, 1947*) published some work based on only four individuals from whom they had collected scalp secretions over a period of several weeks, then analyzed them. Their experiments tended to indicate that severe dandruff was associated with excessive secretion of cholesterol, not necessarily an excessive secretion of total sebum (more work on this subject has recently been published by Butcher and will be reprinted in the American Perfumer).

Following this publication, Demuth sent a communication to our British Contemporary, *Soap, Perfumery & Cosmetics*, based on his personal experience. In fact, his findings "did show that part of the superficial treatment should be directed towards the weakening of the flow (of sebum) by initial stimulation. In very simple terms, by the application to the scalp of materials in which cholesterol is soluble." All of which makes us look at the subject of dandruff in a new light which can call for an excellent program of research on scalp preparations. Tied in with this is the current vogue to use other sterols (sex hormones) in scalp preparations. Perhaps the "cure" for dandruff is to use a solvent for cholesterol, for Butcher's work with Parnell based on very few individuals, showed that the frequent removal of sebum does not induce increased oiliness. oily scalp and hair. For dry or normal hair, you might try using a vehicle consisting of equal parts corn oil and isopropyl palmitate or myristate to reduce the oiliness. You may care to add one of the various stimulants listed in the book, The Chemistry and Manufacture of Cosmetics, the chapter on hair preparations, such as pilocarpine hydrochloride. For oily hair you should preferably start with a hydroalcoholic lotion with 3 per cent chlorhydrate with or without the addition of tannic acid in approximately equal amount. This product is a drug and, therefore, will have to be labeled accordingly. To be sure that these preparations are safe to use widely, you should perform a sufficient number of tests on different people to be assured of product safety.

QUESTIONS AND ANSWERS

760. *HAIR STRAIGHTENER*

Q: *I am interested in entering the cosmetic industry. In particular I would like information about formulating a hair straightening preparation. The type of preparation I am interested in is one which will leave the hair straight, soft and non-greasy looking after application.*

S.Y.—PENNSYLVANIA

A: You are contemplating the manufacture of one of the most difficult products, and we strongly suggest that you do so only through some private label house that has the technical skill prerequisite for the manufacturing of safe products for hair straightening. If it is an ordinary hair straightener that you are interested in, all you need is a white petrolatum base, stiffered with enough beeswax and rosin to give you the desired consistency.

761. *HAIR DYE*

Q: *If you have a formula for a hair dye applicable to the colored trade, will greatly appreciate same. We note that there are a number of hair straighteners on the market which seems to be very popular items in which the hair remains straight for a period of three to six months, and are used extensively now by the colored trade. One popular brand is Perma-Straight. If you have a formula for this, will appreciate same.*

B.M.A.—TENNESSEE

A: We refer you to the February issue of the American Perfumer for information on hair dyes. Dr. Fred Winter has an excellent story on this in the November 1948 and February 1949 issues, giving formulas in the February issue. Regarding hair straighteners, please advise if you are interested in the wax type or the chemical type. We are not acquainted with "Perma-Straight."

762. *SCALP TREATMENTS*

Q: *I wish to make three types of Scalp Oil; one for dry hair, one for oily hair and one for dandruff. These oils are to be used in professional scalp treatments; to be left on the scalp for twenty minutes more or less; with the use of therapeutic lights. And/or to be left on the scalp over night, then shampooed out of the head.*

P.T.Y.—OHIO

A: There is a fundamental inconsistency in your request. Obviously, one should not use an oil on

763. *POWDERED HAIR DYE*

Q: *Can you tell me of any harmless preparation which would make a fine powder adhere to the hair without being easily washed off. What is the ingredient in hair dyes that make the coloring matter adhere to the hair. Some hair dyes are said to be absorbed through the hair into the system, and thus become injurious. In such cases, is it the coloring matter or the hair fixer that does the harm?*

F.H.—TENNESSEE

A: We cannot imagine what material you could use to cause a fine powder to adhere to the hair over longer periods of time so that the powder would not rub off or wash off. To our knowledge no such substance is used in the manufacture of hair dyes. You might use a partially solubilized shellac which could be made up into a hydroalcoholic solution, then used as a carrier for your color pigment. This shellac might be removed from the hair when desired by using a coconut oil shampoo containing possibly a small excess of material like borax or triethanolamine. The hair dye that penetrates deeper into the shaft is usually of the para-phenylene diamine type and of course is not absorbed excepted through the skin, particularly if broken. No fixative is used, but the paraphenylene diamine is applied in reduced form; is then oxidized with 17 volume peroxide.

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The nature of the soil plays an important part in the oil content of the roots . . . The optimum growing period is 15 to 18 months . . . Fertilizers increase the oil content of the roots.

K. S. MURTI* AND C. RAMAN MOOSAD†

THE perfumery and medicinal value of the vetiver roots have been known in India from ancient times, and some sort of cultivation of the crop has been in vogue for a long time in certain parts of South India. As far as is known, however, no attempts have been made to apply scientific principles to the cultivation and study of this crop until recent years. The roots produced in South India are wholly consumed either for medicinal preparations or for export to upper Indian markets, especially to Calcutta, for making hot weather thatties and fans with none of the crop distilled for essential oil.

In Java[1] and in the Islands of Reunion[2] much scientific progress has been made in the cultivation of vetivert roots and distillation of essential oil. In the temperate mountainous regions of Java the soil formed from volcanic ashes is ideal for vetivert cultivation. A crop harvested after a maturity of 15 to 24 months yields about 1000 pounds of dry clean roots per acre which on distillation yields 2-3 per cent essential oil of high quality.

In the Central Indian State of Bharatpur,[3] perhaps the most important location for the vetivert oil industry in the whole of India, no attempt is made to cultivate the roots; but roots growing wild in the extensive forest areas of the State are dug out and distilled *in situ*. Though these roots are said to yield only 0.2 to 0.3 per cent of oil, the industry is able to run profitably on account of the absence of any cultivation expenses beyond payment of a royalty to the State and the low cost of fuel freely available on the spot for the distillation.

The oil distillation of vetivert roots in India made some progress during the war due to the steep rise in price of vetivert oil from about Rs.30/– (in 1930-40) to about Rs.120/– resulting from the complete stoppage of imports from Java and Reunion. This condition stimulated several private and State efforts to the scientific study of the cultivation and distillation of this hitherto neglected but valuable crop. The more important of these efforts are those made by (1) The Essential Oil Exploratory Committee of the Council of Scientific and Industrial Research which conducted a survey of the crop throughout the country and collected samples from different parts which are now under study in the Institute of Plant Industry, Indore[4] and (2) The Government of Madras who has sanctioned a scheme of work which is being worked out at the Kerala Soap Institute, Calicut.

PROBLEMS STUDIED

In the year 1943-44, the Government of Madras sanctioned a scheme for conducting field scale cultivation experiments on vetivert in and around the fish curing yards of the West Coast, the white sandy soils of the coast being then considered to be the most suited for the cultivation of this crop. Cultivation was actually started by the Kerala Soap Institute in July 1943 with the assistance of an experienced Agricultural Demonstrator. The area under cultivation was extended to about 20

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† Agricultural Demonstrator, Kerala Soap Institute, Calicut, India.

TABLE I

Vetivert Crop 1943-44

Date of distillation	Type of soil	Center of cultivation	Weight of roots distilled	Weight of oil obtained		Per cent yield of oil
			lbs.	lb.	oz.	
23-6-45	Red sandy loam	West Hill	200	1	12	0.87
23-6-45	Red sandy loam	West Hill	126	1	—	0.79
10-9-45	White sandy	Chawghat	195	0	7	0.22
15-9-45	White sandy	Chawghat	175	0	7	0.25

acres in 1944-45 and to about 30 acres in 1945-46. The main object of the scheme was to study the optimum conditions under which the maximum yield of essential oil (not merely roots) per acre could be obtained with a view to popularizing the industry on scientific lines among the poor fisher folk of the coastal areas as a subsidiary occupation for them.

The following were the more important aspects under study in the course of the cultivation and distillation of the roots.

1. The best type of soil suited for the maximum yield of essential oil per acre.

2. The correct stage of maturity of the crop for harvesting to get the best results, and the effect of weather on essential oil content.

3. Effect of manure and soil fertility on the yield of roots and their oil content.

TABLE II

Vetivert Crop 1944-45

Serial no. of distillation	Center of cultivation	Type of soil	Date of distillation	Weight of roots distilled, lbs.	Weight of oil obtained, oz.	Per cent yield of oil
1	Tanur	Red laterite loam	8-3-46	40	6	0.94
2	Tanur	Red laterite loam	8-3-46	33	4	0.76
3	Tanur	Red laterite with very little sand	12-3-46	43	7	1.02
4	Tanur	Laterite loam	15-3-46	50	7	0.88
5	Paravanna	White sandy	29-5-46	200	7	0.22
6	Paravanna	White sandy	31-5-46	295	9	0.18
7	Paravanna	White sandy	3-6-46	274	8	0.18
8	Paravanna	White sandy	27-5-46	310	11	0.22

EXPERIMENTAL

With a view to studying the problems referred to above, a large number of distillation experiments were conducted with the roots grown and harvested under different conditions from the crops planted in the two years 1943-44 and 1944-45. The variety cultivated throughout the period was the Ponnani (Malabar) variety, the seedlings obtained therefrom and propagated. The other varieties are also under study.

EFFECT OF SOIL

The crop in the first year (1943-44) was planted late in the season (July-August). As a result the yield of roots was adversely affected to some extent and the findings were not therefore comparable to those obtained from subsequent crops (1944-45 and 1945-46). Still it was clearly seen from the distillation trials conducted, that the roots produced at the Fisheries Biological Station Compound at West Hill where the soil is a red sandy loam, gave much higher yields of essential oil than the roots of similar maturity produced in other centres like Chawghat, Veliangode and Malpe where the soil is mostly pure white sand.

The results of distillation of the first year's crop are given in Table I.

The roots were all of about same maturity. They were chopped into bits of about 3 inches, pounded and soaked in water for 24 hours, and then distilled in the ordinary pot still for 16 hours. The pot still is made of copper

TABLE III

Oil Yield in Relation to Root Maturity

Serial No. of distillation	Month of planting 1943	Month of harvest	Maturity (in months) of roots	Date of distillation	Weight of roots distilled, lbs.	Per cent yield of oil	Weather at harvest time
1	July	May '44	10	27-11-44	17	0.10	Dry
2	July	July '44	12	13-12-44	15½	0.25	Rainy
3	Aug.	Nov. '44	15	30-11-44	21	0.56	Rainy
4	July	Dec. '44	17	7-12-45	35	0.67	Dry
5	July	Dec. '44	17	12-12-45	16	0.79	Dry
6	Aug.	May '45	21	25-6-46	200	0.87	Dry
7	July	July '45	24	11-9-46	387	0.25	Rainy
8[1]	June	July '46	25	20-9-46	128	0.20	Rainy

1 This is from Paravanna plantation where the soil is sandy.

and was provided with a false bottom on which the roots are placed so that these may not be in direct contact with the water at the bottom of the still when distillation takes place. Steam as well as direct firing was provided for the stills in all cases. The inference that the roots cultivated in red loamy soil would give a higher percentage of essential oil was borne out by experiments in 1944-45 with roots grown under different types of soil. The results are given in Table II.

These roots were all of 18 months' maturity and the time of distillation was kept constant (16 hours). Other conditions of distillation were the same as those mentioned above.

TABLE IV

Effect of Manure on Oil Content

S. No.	Centre of cultivation	Type of soil	Nature of manurial treatment	Date of distillation, 1946	Weight of roots distilled, lbs.	Weight of oil obtained, oz.	Per cent yield of oil
1	Paravanna	White sandy	Basal manuring[1]	29-5	200	7	0.22
2	Paravanna	White sandy	Basal manuring	31-5	295	9	0.18
3	Paravanna	White sandy	Basal manuring	3-6	274	8	0.18
4	Paravanna	White sandy	Basal manuring[1]	27-5	310	11	0.22
5	Paravanna	White sandy	Am. sulphate @ 112 lbs. per acre	15-5	302	19	0.39
6	Paravanna	White sandy	Am. sulphate @ 112 lbs. per acre	20-5	305	16	0.33
7	Paravanna	White sandy	Am. sulphate @ 112 lbs. per acre	22-5	303	16	0.33
8	Paravanna	White sandy	Am. sulphate @ 112 lbs. per acre	24-5	304	15	0.31

1 Basal manuring consisted of application of brine manure (i.e., manure formed by pouring the brine after curing of fish in a pit dug on the ground with sides capable of absorbing the water) @ 2500 plus ash @ 500 pounds per acre applied at the time of planting.

TABLE V

Characteristics of Different Vetiver Oils

S. No.	Source	Sp. gr.	Ref. index	Acid value	Ester value	Ester value after acetylation
1	Roots cultivated by the Institute in Sandy Soil	0.998 at 28° C.	1.518 at 28° C.	19.2	13.45	149.6
2	Roots cultivated by the Institute in Red Soil	1.011 at 30° C.	1.522 at 30° C.	22.6	16.8	151.8
3	Kannauj[1]	0.98 at 31° C.	1.508 at 31° C.	11.2	15.23	151.2
4	Reunion (5)	0.982-1.020 at 15° C.	1.5150-1.5285 at 20° C.	4-20	5-20	103-150
5	European distilled oil (5)	1.014-1.04	1.5200-1.5230 at 20° C.	25-65	10-25	130-160

1 Tested at the Institute.

In both years the roots produced in loamy soils were found to be thick and wiry with only a small proportion of hairy rootlets, while the roots produced in sandy soils were thin and hairy. These results indicate that the red laterite loamy soil is preferable to soils of white sandy type for the cultivation of vetiver when the roots are meant for distillation of essential oils. The unsuitability of the pure (white) sandy soil is corroborated also by the fact that in Java and Reunion, the soil favoring cultivation was either rocky or volcanic.

MATURITY OF ROOTS

A large number of distillation experiments were conducted with roots harvested at different stages of maturity from the 1943-44 crops grown at Tanur (red laterite soil). Results are shown in Table III.

Though it was not possible to repeat each experiment a sufficient number of times due to various practical limitations, the above data warrants this general conclusion regarding the optimum maturity of the crop at harvest time: The oil content increases progressively up to 21 months; it is definitely uneconomical to harvest before a minimum maturity of 15 months, while a period of 21 or 24 months will also be uneconomical. A period of maturity of 15-18 months for the roots in the soil is considered the optimum.

The sudden drop in the oil content at 24 months' maturity might be due to harvesting of the roots in the rainy season and the consequent washing out of a part of the oil from the roots underground during heavy rains.

MANURE AND FERTILIZERS

While lack of facilities prevented regular manurial experiments with sufficient number of replications of each treatment, sufficient data have been collected from distillation experiments with roots grown under different manurial treatments.

Ammonium sulphate was applied to about 1 acre of the crop at Paravanna as a top dressing 2 months after planting at the rate of 100 pounds per acre. The roots from this area were found to be thicker than those harvested from the control area and gave a higher percentage of essential oil. The results are given in Table IV.

It is apparent from the above data that although manuring increases the yield of oil to some extent even the increased yield is far less than that of roots cultivated in a better soil—red laterite soil, for instance. In other words, the fact that natural soil fertility is more important than the fertility created by manuring is an additional factor in cultivation.

Similar distillation experiments with roots to which groundnut cake at 200 pounds per acre had been applied 2 months after planting at the time of the first earthing up are being conducted. The results of these and other manurial treatments, such as varying doses of brine manure with and without ash, effect of supplying groundnut cake and ammonium sulphate in graded doses, are under investigation and will be published upon completion.

For a comparative study of the characteristics of vetivert oil the analytical values of different samples are given in Table V.

FUTURE STUDIES

Some other important aspects awaiting investigation are the following:

1. Study of the different varieties of vetivert such as 'Kola' Ramacham, 'Pandi' Ramacham (Travancore variety), the Tanjore and Trichinopoly and Tuticorin varieties, and the north Indian varieties and their comparative merits in regard to essential oil content.
2. The effect of planting the crop in different times of the year on maturity and essential oil content.
3. The effect of wider and shorter spacing between plants on the yield of roots and essential oil.

SUMMARY

The nature of the soil for cultivation of the vetivert plays an important part in the oil content of the roots. The white sandy soil is not suitable. Red laterite soil or other rich soil is recommended.

The optimum period of growth for the roots in the soil for obtaining the maximum yield is considered to be 15 to 18 months. The roots should not be harvested either in the rainy season or immediately after, as during this period the oil content in the roots will be low.

Manuring with ammonium sulphate, brine manure and groundnut cake will increase the oil content of the roots. This aspect is under further study, together with some other factors affecting cultivation.

The authors express their thanks to the Director of Industries and Commerce, Madras, for permission to publish these results.

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Toiletries Rise in Near Free Austria

Vitamin baby creams, deodorants, new shampoos and practically all of the latest preparations shown in surprisingly attractive exhibits at Vienna Fair . . . Retail stores well stocked

BY OUR VIENNA CORRESPONDENT

THE "International Fairs of Vienna" include exhibits at two different locations. The larger ground on which it is held, is centered around the 19th century "Rotunde" building located in the Russian sector of Vienna. The "Rotunde," these days, is a burnt-out ruin, but two newly erected buildings are now housing the exhibitions of Czechoslovakia and Hungary, while Italy has a building of her own. The rest of the fair is shown in smaller, sometimes prefabricated, buildings and halls. Another well-known institution which usually attracts domestic as well as foreign visitors, is the exhibit, and sample show, of foods and drinks. This year, it illustrates the sudden upswing in Austria's supply situation which, a few months ago, overcame its postwar starvation period and has, in the meantime, almost been restored to its prewar status.

The second location of fair buildings is in the city, in an 18th century imperial building ("Messepalast"). This includes the fair of cosmetics and toiletries.

As it is generally recognized these days that economic recovery in Austria is principally based on Marshall Plan Aid, there is a separate ERP exhibit.

As far as the perfumery and toilet goods fields are concerned, however, the striking progress in Austria's postwar recovery does not imply the return of normal conditions; nor does it mean that business, at its present stage, is satisfactory.

SOAP SALES ARE SLOW

So far, domestic Austrian soap was a government-prescribed, abrasive-containing formula of very little merit which will, from now on, be supplanted by yellow laundry soap. Of course, foreign-made (mostly American) toilet soap is also obtainable. This appeared first on the black and grey markets, but outside Vienna its sale has, finally, been legalized by a change of governmental regulations and it can be freely purchased. The law in Vienna is different. It well illustrates the stickiness of the red tape variety wrapped around all economic and political life in Austria, that only government soap may be sold in Vienna, wherefore, right before Christmas, men of the Economic Control Police searched business premises and homes for . . . toilet soap. The imported brands were simply confiscated, wherever they were found. This feat, of course, reduced Vienna's drug store business in the wake of Christmas to an even lower level than it had reached at a time when the public poured its scanty funds into foods, and nothing but foods. There was only a tiny bit of money left anyway, for merchandise which had, eleven years ago, been a standard of civilization.—American soap brands, of course, reappeared quickly on all counters when the razzia was over.

PERFUME PRICES ARE UP

In the perfumery business, the division of Austria has caused newcomers to this trade to start operations. There are so many brands in existence now, that no retailer can carry them all and none wants to stock them, for fear they may drop out of the market on account of poor quality, high price, or lack of funds. The large number of firms established at a time when conditions are unsettled, increases the demand for scarce materials and forces their prices up; which again, reflects unfavorably on the retail business.

The current Austrian prices of some cosmetic raw materials are as follows:

Glycerin ("Chemosan" brand)	S 28.20 per kilo
Spermaceti	S 40.00 per kilo
Beeswax	S 28.80 per kilo
Cocoa butter	S 32.75 per kilo
Lanolin ("Chemosan" brand)	S 20.00 per kilo
Eucerin	S 24.90 per kilo

Other products are only obtainable on the "grey"

market, such as high quality vegetable oils, Tegin, Lanetta wax, cethyl alcohol, lecithin, cholesterin;—all priced at about S 40-50 per kilo. Essential oils range between S 200 and 1000 per kilo, and above.

Yet, in spite of the chaos that has just been overcome, and of all remaining difficulties, the Viennese toiletries business is now in a stage of reconstruction. It remains surprising to note that, in an economy which the western world still figures as deficient in the bare necessities of life, all retail stores are well stocked with attractively packaged powders, tooth pastes and mouthwashes, cosmetic creams and jellies, lipsticks, nail polishes, and whatever other cosmetic product may exist, these days, in Paris, New York, or London. Most of the merchandise offered is domestic. While the large number of firms may not last, this business, as a small indicator of Austria's entire economy, needs careful planning to adjust prices and increase sales volume.

The present Viennese Fair illustrates the efforts made and results obtained since 1945; stresses the will to economic survival, and leaves some hopes and hints for the future that may, sooner or later, be substantiated.

The following is an alphabetical list of the most prominent firms presenting their products at this year's Viennese Fair (Messepalast Building):

J. Brunelik (Vienna I. Lilieng. 1): Perfumes, colognes, hair preparations, creams and lotions. Represents several houses abroad.

Chemo-Droga (Vienna V. Kettenbrueckeng. 21): Hydrogen Peroxyde, medicinal and technical, in solid form, as made by Elchemie A. G., Kufstein, Tyrol.

Christamay (Karl Mayer, Vienna IX. Dreihackeng. 10): "Bobby" shaving cream (Austrian government inspected); Baby cream containing vitamins F and D.

Doris Werke (Innsbruck, Tyrol): Cold creams and hand jellies.

Elida-Wiener Parfumeriegesellschaft (Vienna I. Schenkenstr. 8-10): Prewar specialties in individual packages or gift boxes; shampoos "Kamilloflor" and "Brunetafloor"; toothpaste "Kalodont"; Lemon cream and "Jede Stunde" (vanishing) cream; colognes.

Fichtolin Werke (Vienna V. Garteng. 8): "Fichtolin" telephone disinfectants and room deodorants, atomizers and refills.

Gudo Co. (G. Donath, Vienna II. Schuettelstr. 61): Soaps, shampoos, tooth paste, hair preparation; oriental and leather-type colognes.

Hessle & Kubitscha (Vienna VI. Marchettig. 14): Representatives of American houses such as Squibb; manufacturers of "Cutex" products under royalty. Makers of adhesive plasters "Novoplast" "Normaplast," etc. and special corn cures.

Erwin Huber Co. (Vienna XII. Auhofstr. 65): Cosmetic specialties and patent medicines; Nerve ("Baldrian") Bonbons; moth preparations, etc.

Oskar Karla Co. (Vienna III. Eslarng. 13): Cologne atomizers in a large variety of shapes and styles, mostly of cast or ground, colored glass with tassel; plastic articles.

Kosmata (Vienna VII. Westbahnstr. 26): Perfumes and colognes "Russian Leather," "Aspen Lavender," and "Alpenheu" (Alpine Hay) in a rustic-looking package; quinine preparations for hair care.

A. Motsch Co. (Vienna IV. Prinz Eugenstr. 70): Soaps and perfumes.

Odol Werke (Vienna VI. Mollardg. 84): Toothpaste, mouthwash and related articles.

Osmanit (E. Mertl, Vienna IV. Margaretenstr. 19): Alum pencils and stones.

Perolin Fabrik (Vienna XIII. Feldmuehlg. 4) Disinfectants and deodorants (Aerol, Brixit, Cedeform, etc.); Pine needle bath oil; extract of Tyrolian conifers distilled by the Perolin house; bath preparations; conifer-scented smoke destroyers; floor polishes, furniture polishes, varnish stains; atomizers and applicators to go with the above products.

Protus Works (Robert Papke, Vienna XIV. Lutzowg. 11): Skin fresheners and lotions; alkali-free shampoos, face masks; cleansing and lubricating "Citron" cream; and "Creme Navarre."

Riviera (Robert Schrenk, Vienna XIV. Penzingerstr. 33-37): skin tonics, colognes, perfumes, after shave preparations; tooth paste and mouthwash; creams, brilliantines; lipstick "Rouge d'Amour," mascara.

Robe Co. (Vienna XVI. Friedrich Kaiserg. 70): Birch water for hair care; day and night cream, toothpaste.

Salva Co. (Karl Weber, Innsbruck-Mühlau, Tyrol): Powdered shampoos in bulk and individual envelopes; creams, powders; bath salt; toothpaste, etc.

"Franz Schubert" Co. (Vienna VI. Gumpendorferstr. 117): "Old-Viennese" perfumes and colognes; conifer-scented bath salt, etc.

Hans Schwarzkopf Co. (Vienna VI. Webg. 2a): Shampoos in liquid and powder form; Alkali-free "Onalkali" shampoo.

C. Hermann Sigle (Vienna VIII. Josefstaedterstr. 29): Representative of toiletry houses abroad such as "Lalaghe," Paris; Flapjack etc. Makers of "Clinodont" toothpaste, lipstick, "Peach Cream" and Lanolin cream; sunburn oils, after-shave preparations, etc.

Franz Tamme (Vienna VII. Lerchenfelderstr. 15): Representative of several American houses.

Viandropa (W. Gerstenberger Co. Vienna BVII. Ottakringerstr. 36): Wholesalers of cosmetics; lipstick; moth preparations, etc.

The toiletries exhibit at the "Messepalast" is surprisingly well arranged, attractive looking, and sometimes pepped-up with good ideas; such as the stage display showing the spot where PEROLIN's Tyrolian conifer oils come from; OSMANIT's large alum crystals utilizing the material's light-piping properties; and FRANZ SCHUBERT's tiny perfume flasks suspended on pastel-colored ribbons over the heads of crinoline-wearing ladies made of paper. The tendency is toward avoidance of unnecessary decoration, in order to let the crystal-like bottles and flasks speak for themselves in the center of white-framed windows.

Though the number of foreign and domestic visitors has not as yet been established, it is understood that the present Viennese Fair is a success.—*M.N.*

Selling Costs Should Be Put

Why toiletries departments should NOT be run at expense of manufacturers

TO what extent does the average toiletries department reflect the character of its store? The answer seems to be that it does not, that in most cases it bears little, if any, resemblance to its parent.

Perhaps we ought to inquire first whether the store itself has a character. No doubt there are some which change their pattern so often that they cease to have any. But today any storekeeper worthy of the name has established for his store a definite place in the community, so that he stands for certain types of merchandise, or certain price lines, or certain methods of operation and promotion. Throughout the store you find a uniform understanding of this concept and an insistence by management on adherence to it.

But there is one outstanding exception. That is when you examine the toiletries department. There, in store after store, you will find a section apparently entirely unrelated to the whole organism. Its stock is composed of an assortment of items and lines designed to be all things to all women; its promotional efforts are in support of anybody who will foot the bill, regardless of the nature of the merchandise being promoted; its salespeople are persons of multi-hyphenated loyalties; and the very appearance of the department is a hodgepodge, the result of which is primarily to confuse the customer who wants to shop there.

Both stores and manufacturers would benefit by a re-examination of these departments and a re-evaluation of their place and function in the overall store picture. It cannot be denied that many lines are being carried today without profit to either the store or the manufacturer—and we need hardly remind ourselves that such relationships cannot be very happy, nor very sound.

Let the store analyze carefully every line it carries—by size, by volume of business, by the nature of its products, by price lines, by type of promotional efforts, by cooperative assistance, and by potentiality for increased business. Let it then appraise the department as an entity and determine how it conforms to the character of the rest of the store, and what it is doing to help foster and develop that character. And by all means let it get away from the idea that a toiletries department must be run at the expense of the manufacturers.

on Retailers

says leading department store buyer

Benjamin Eisner

There is no valid reason why management should expect to run the department with no direct selling or promotional costs to the store. Provided such costs are held within the limitations imposed on other departments, they will be fully justified. Quite apart from its dollar volume, the value of the department cannot be calculated without including the inestimable value of the traffic which the department can and does bring into the store.

With this picture clearly before it, the store will have no difficulty in deciding which lines belong and which ones do not. That a line may be selected to be dropped is in itself no reflection on the line. Although it does not fit in store "A," it may be the most suitable for store "B." What will happen is that a department will be reborn which will be in harmony with the store, will be a profitable account for its resources, and will truly serve its public. The decisions will not all be easy to make, nor will results be apparent overnight. But with courage and foresight and reasonable manufacturer cooperation, stores can make their toiletries departments legitimate members of the family.

Benjamin Eisner is assistant merchandise manager of the street floor shops of Neiman-Marcus in Dallas, a store of almost unparalleled prestige in the specialty field. He also is buyer of cosmetics and toiletries.

Mr. Eisner, a lawyer by profession, practiced law in New York City until 1934 when Stanley Marcus, whom he had known at Harvard College, persuaded him to enter the retailing field in Dallas. "Just plain lucky, I guess," he'll say when asked about his switch from the law. He finds retailing interesting and what's more—fun!

He joined Neiman's as floor manager and divisional merchandise manager of the second floor shops and served there until he joined the Marine Corps in World War II.

After the war he was assigned to cosmetics and toiletries as buyer; taking over as assistant merchandise manager of the street floor last year. His reputation as an able buyer and merchandiser is wide-spread in the retail field and his department is one of the best in the nation.

He attended Phillips Exeter Academy and is a graduate of Harvard College and the Harvard Law School.

Sales Fair—Pick-Up Expected Soon

Both unit and dollar sales advance indicated . . . Tip for next year—suntan preparations neglected . . . Top interest continues in hair preparations . . . Colognes benefit by heat wave . . . Sales holding up—some cities show increase.

CHICAGO

Unit and Dollar Sales To Advance

COSMETIC manufacturers who may be expecting early placement of holiday orders may take longer vacations. Buyers throughout this area, in the larger stores, will not be in market until well after Labor Day. Holiday buying will be placed as late as mid-October, so that inventories will be held down, and the last word in new packages, containers, or products offered for the gifting season.

The extreme humidity and high temperatures for six weeks through the Mid-West made the corn crackle but it was not a time when the stores took advantage of the weather to feature suntan lotions. In six cities only two suggested a suntan cream, and the ingenuity of the stick cream, which permitted it to be stuck in the sand, had a few followers in the Chicago area.

Beaches, pool-sides, and parks have been literally covered with people inducing suntan, and obtaining more sunburn than desirable. Now is the time of year to begin that campaign to promote suntan lotions for 1950.

To say that treatment lines are active may make both buyers and manufacturers wince. But the stores that have kept them in full view of the public, and have given specific reasons for using creams in HOT weather, have found an increased volume of selling.

Indicative of the early Fall selling and the numerous back-to-school programs, which are really back-to-college for cosmetics, are the various promotions staged during the past six weeks. Leading all sales was solid cologne, with the liquids a close follower. Prices were quoted on perfume and cologne.

Kern's in Detroit featured hot weather make-up ideas with satisfactory sales; Blocks, Indianapolis, outline "Summer grooming aids" that included deodorant, soap, and cologne. The ice-cube coolness of a solid cologne came in for attention in many smart ways: Carson Pirie Scott & Co., Chicago, had great masses of dry-ice steaming in the department on every main aisle counter to stress the coolness of the featured cologne. Two were included in wide spread advertising and both window and department display, Dana and LeLong, the latter well known to discriminating dressers, continued steady in sale.

Not in many seasons have so many and so much presentation been given to deodorants. Cream types at half-price got much of the consumer's dollar. Brandeis, Omaha, featured two liquid types and four cream. This is an average of what a department sells. Buyers have complained that prices all but over-lapped for a deodorant was as necessary as soap. Here are Brandeis prices. A liquid at 60 cents and $1.25; cream 50 cents and $1; another cream 39 cents and 59 cents; a third cream 43 cents and 59 cents and the fourth was priced 33 cents and 57 cents. "If a customer wants a small size for travel let her buy one at the 5 and 10, but why load us down with all these close prices and with such a small percentage of contents difference?" asked a State street buyer.

Younkers, Des Moines, suggest that a cologne of your own type fragrance will make you feel like a rare Spring day and equally as happy. The Fair, Chicago, outlined soaps in gay boxes and featured sun-tan oil (one of the few to do so) plus deodorants and colognes.

Dayton's, Minneapolis, made legs important in featuring its various hair removers and tanning lotions as well as sun protecting creams.

THE HAIR HAS IT

Just how many women saw the smooth, lustrous, well cared for hair that was a part of the Harriet Hubbard Ayer promotion may not be accurately estimated because many women went back two and three times. In Chicago, Carson's sponsored the show and had over 4,700 women in the department, which in any cosmetic department would be of value.

This show, in various cities of the Mid-West, centered attention on hair. The result was apparent in the many promotions, demonstrations and featured ads that suggested home permanents, creams for shampoo and for after permanent treatment as well as brushes for daily care. Not in years have the "hairs" had so much attention.

AFTER 25 WHAT?

It used to be that facial and hair grooming, considered necessary after 30, was stressed. Now the new Sperti pack-

age makes the beginning for smartness in old age complexions a must at 25. It's a good idea.

WHAT TO ANTICIPATE

Deodorant sales for men will increase. Soap sales will be greater. Bath salts, if the Federal tax is removed, would move in volume. One pine-type lotion, featured as a detergent, has been producing a new sales record.

Friction lotions can be sold throughout the year, if only presented and featured. Most stores keep them on the shelf and few, or rather too few, clerks know the cooling function they perform.

Consumers will soon demand more compact departments. Perfumes together for comparison; colognes grouped as soaps even in most competitive lines. The same type of service will be demanded by Mrs. Consumer for other departments. All hair preparations may be upped about 50 per cent as home permanents move forward in volume. Plastic jars, easily discarded and preferably of small size are wanted for travel. Cosmetic kits must also be lighter, as must the elaborate cosmetic bags. The department and specialty store can sell small sizes in such outfits just as well as the 5 and 10 where such patronage now goes. *—Jean Mowat*

DALLAS

Sales Over Those of a Year Ago

WITH the temperature hovering in the hundreds, the cosmetics business in Dallas during the past month has centered around items for hot weather. Department stores report an upsurge in demand for light colognes. All kinds of hair preparations have become fast moving items. Chain drugs are moving about the same items.

The new Toni special with the new curlers is meeting marked success at all stores. One store reported ordering what they considered a large stock in preparation for the national advertising campaign only to find that their supply was gone before they could even run a tie-in ad in the newspapers.

Sanger Brothers reports two particularly fast selling items: Esoteric Hand Cream, and Guitar—the non-smear lipstick. Both of these are being introduced for the first time. A special on Light Foot soap also brought many customers, in fact one woman bought 36 boxes.

A. Harris and Co. reports a picked up interest in dry colognes with Lucian LeLong and Dana leading the field. Demand for Dana fragrances has been sparked with an offer of a travel size package with each purchase. Tussy deodorant is still moving fast as a result of newspaper promotions several weeks ago.

Endocreme products have shown gains in part due to a contest being held by the manufacturer among store representatives. Houbigant's liquid sachet is popular.

Probably the most successful of recent promotions is reported on Rubinstein's Silk Tone face powder.

Every week A. Harris has a style show at the Century Room of the Adolphus Hotel. Often at these affairs sample bottles of cologne or perfume are distributed. This almost always brings a steady demand for the scent presented.

Most Dallas cosmetic counters, unlike many other cities, report their sales for the first six months of 1949 somewhat above the same period last year.—*Jean Shaffer*

CINCINNATI

Sales Girls Have Perked-Up

A RECORD-BREAKING heat wave here sent coins tinkling into the coffers of cosmetics departments as women crowded around to buy deodorants and more deodorants. The trend is toward liquid ones, with the squeeze-bottle sprays (Stopette and Sprite) in the lead. Revlon's new cologne deodorant scored. Tussy and Dorothy Gray, with half-price sales on cream deodorants, did well for themselves.

Hot weather revealed another interesting trend here. Women no longer like the opaque film-type of leg make-up which is designed to look like a stocking. They prefer the stain-type which looks like a suntan.

Another Summer hit was Elizabeth Arden's "Blue Grass" cologne, which, with the atomizer added, is selling like hotcakes wherever the line is carried. Faberge's scents, both in cologne and perfume, have had a consistent good market, and the new solid colognes were a hit. At the John Shillito Co., 60 pieces of the new Dana solid cologne went over the counter even before an ad was placed in a newspaper. Both Dana and Lucien LeLong were expected to be good sellers with H. and S. Pogue.

The city-wide promotion of the Toni Twins visit paid off but not exactly as expected. The home permanents didn't sell any better, but the rest of the line had record sales.

Tussy's cream shampoo, with the dollar tube at $.60, went well everywhere. Revlon's matchmaker set (lipstick, nail enamel and adheron) continued its high sales. An old-fashioned bulk soap sale, with a help-yourself sign, brought big results at the Rollman Sons Co.

Promotions planned are a visit by Rose Laird to Shillito, promotion of the Lilly Dache thirsty kerchief (for drying the hair fashionably away from home), and a half-price-and-lower sale (Rollman).

Novelties of all kinds continued to sell well at the Dow Drug chain with the buyer continuing her call for "cute, catchy items." *—Mary Linn White*

LOS ANGELES

Business to Pick-Up in 30 Days

YOU have to leave the buyers this month and talk to the salesgirls to get the real lowdown on conditions in toiletries sections. All buyers won't always give you the true picture. Your proposition may be 100 per cent right, its promotion flawless, yet some buyers who have

not had their jobs very long or who don't know you very well will pretend to consider it carefully and then turn it down.

But the salesgirls, bless 'em, have no illusions about impressiveness, and no pseudo dignity to maintain, and they'll tell you right out that it's tough to sell anything this month. Plenty of sales are being made, of course, but they're not easy ones.

But this month won't last any longer than 31 days. Midyear inventories made certain controllers unhappy, but to buyers, who know the toiletries business, the effect was stimulating.

So forget the buyers this month. Go out and talk to the salesgirls. They'll tell you that you might as well go down to the beach and enjoy yourself. There's nothing the matter with your line, item, price, discount, advertising, packaging, promotion. It's just July.

So we slung the sample case into the corner and went down to the beach. And there we found evidence that there's plenty of business to be had if you want it bad enough. The Janean Co. felt that they had a most unusual product in Vad suntan oil, and they wanted to break into the market. But it was July. All potential accounts were loaded with suntan preparations, and they needed a new one just like they needed a hole in the head. So Janean went around to the back door and pulled the orders in instead of trying to push them through the front door. Where is most suntan oil used, they reasoned. On the beaches, of course. So they went to the municipalities controlling the beaches from San Diego to Santa Barbara, and signed them up for a tent concession right on the sand. Then they put a cute babe in each tent with a half barrel of suntan oil and an electric sprayer, with power brought through a wire buried in the sand from the lifeguard's quarters. "Avoid burning,—get your Vad spray, for a quick, safe tan, 25¢," was the slogan. Then the Janean Co. went on the radio to ballyhoo the beach spray, announcing that the same Vad suntan preparation was available at all drug and cosmetic counters, at 59¢ and $1.00.—*Don Cowling*

PITTSBURGH

Home Tinting Offers Big Market

ANTICIPATING the Fall Season, when new styles arrive and make women aware of their appearance, buyers are looking for more activity in cosmetic customers.

Color has been stressed so much, in everything from home furnishings to wearing apparel, that salesgirls say it isn't hard to get a listening ear when the correct colors to wear on the face are concerned. In order of their popularity, the three items that rate highest include hair tints, lipsticks and foundations.

In this area, there is tremendous interest in hair products. A good, safe, dependable item for tinting or dyeing the hair at home has a big market. An interesting comment along this line comes from a cross-section interview with the girls who sell these products. They say the younger group of women (those not worried about gray locks) who want at-home tints are on the increase.

As for lipsticks, one buyer expressed the opinion that where one or two lipsticks sufficed at one time, now nearly every woman has no less than a half dozen in various stages of use in her purse, on her dressing table, or tucked in her desk (if she is career minded).

Girls behind the cosmetic counters report that smaller jars of creams, and all cosmetic needs that have been packaged in units to sell at a smaller price, are meeting with less sales resistance.

Reported criticisms that have come from customers include: The drying effect on lips of a liquid used to keep lipstick in place and prevent smearing. This has been particularly noted in liquid lipsticks, as well as the liquid put on top of the regulation kind. If a liquid could be perfected that would be non-drying, but at the same time provide lasting qualities, it would be received with enthusiasm, according to a number of women who have been interviewed.—*Lenore Brundige*

NEW ORLEANS

Sales Lag

UNLIKE most popular U.S. tourist havens, tropical New Orleans has comparatively few Summer visitors to make up for the exodus of its own vacationing population. Summer travel is mostly a one-way proposition here—away! The market result shows up in lagging sales which reaches its low ebb at mid-August.

Not only does the tropical heat drive many customers out of town, it also cuts down on the use of certain standard cosmetics. Heavy creams for day or night use are a drug on the August market. Tissues have to wait for cool Fall nights to be rejuvenated; few women can stand the feel of oils and creams when the thermometer sticks above ninety for days on end. Cream type foundations also suffer, and many women omit using any type of foundation in July and August.

Smart merchandisers can combat this secondary sales lag by promoting Summer cosmetics, and as a result the August sales charts show volume being maintained (insofar as it is maintained) by suntan and sun-oil products, deodorants, skin tonics, and light cologne products. Hair conditioners and home waves continue to be in demand throughout the Summer.

Bare legs have always been popular in the South, despite the promotions of stocking manufacturers. Again this year the market for suntan leg makeup is maintained, most stores report. The very dark shades of face makeup aren't quite as popular as in past years, however. Darker shades of lipstick and rouge are in demand (as compared with the Winter and Spring months) but the nut-brown maiden isn't as much in favor as she was a few years ago, thanks, no doubt, to the manufacturers themselves, who sold the pink look so effectively that many southern belles refuse to relinquish it. Stores continue to stress the fashion tie-in between sun lotions and sun clothes, a good and logical promotion which pays

off, buyers report. However, by mid-August the Summer clearances will have taken most playclothes off the counters, and the dog days of late August will be the most difficult for the promotion minded cosmetic buyer.

Manufacturers who promote packable packages for their wares get the best of the Summer business, stores here report. Sales of large economy size products fall off in favor of the small or trial size tube or jar which fits into the toe of a play shoe in that travel suitcase. One buyer suggests some manufacturers are missing a bet. Why not put up a "vacation size" package of all the basic items in a line? Enough for two weeks, and so advertise it on the package? Of course, there are lots of trial sizes and introductory combination sets on the market which can be bought and used for this purpose, but the "vacation package" would in itself spur sales, this buyer feels. The elaborate Summer combinations boxed by Arden and a few other top luxury lines are too expensive for the average career girl or housewife setting off on her annual two weeks jaunt to the seashore or the big city. Furthermore, as recent sales trends have showed, most women prefer to pick their own separates rather than accept the manufacturer's combinations. In this connection, it might be pointed out that a good deal of Summer business goes to the nation's five and ten cent stores which stock small packages of various cosmetics. Many shoppers will try a lesser known or at any rate a different brand available in a small size, to save suitcase space. Department and specialty stores could reclaim a good deal of this business if the small sizes of the more famous brands were available to promote in July and August.

—Glendy Culligan

BUFFALO

Self-Service Section
Going Strong

SUMMER business in Buffalo is considerably slower than that of last month. The "clincher" of this condition is the fact that reduced price promotions have been miserable flops.

The only store reporting business that surpassed last month's tally is L. L. Berger, where increase in volume was attributed to concentrated sales efforts on the part of the clerks at the counter. One item that is enjoying extensive success there right now is Mathews' suntan spray.

Naturally, colognes and soaps are at the height of their heyday in *all* the stores, with Lucien Lelong's solid "stick" cologne exceeding all sales expectations wherever it's sold. Colognes with cool-sounding names or presented in cool-looking packages top all lists everywhere, Prince Matchabelli's Summer Frost being one of the foremost in this category. The squeeze-bottle, spray-type deodorants are squeezing a good bit of business away from the manufacturers of cream-type deodorants.

At the William Hengerer Co. an outstandingly successful soap promotion has just been staged with "Beauty in the Morning". A home and beauty column in the Buffalo Evening News also featured this soap one night during the week of its promotion, resulting in sales that have been breathtakingly constant ever since. Another item that's been a sellout here is the Toni home permanent kit featuring the new twirl curlers.

With vacations, weekends and overnight jaunts so much to the fore right now, the "sundry section" at Hengerer's is at the peak of its season. Its self-service area stocked with a miscellany of low-priced sundries.

Another special area in Hengerer's that has acquired a wonderful reputation for itself and excellent returns for the store is the perfume bar in the center of a first-floor aisle. Here are displayed exotic quart-size bottles of a wide variety of perfumes. "Sniffing samples," graciously given, keep the cash register jangling all day long with sales that remain consistently good *—Maggie Flemming*

ATLANTA

Colognes Are
Selling Well

COSMETICS have moved in the long Summer stretch in Atlanta. Figures are about even with the same period last year—some department heads are even suspicious of a fraction increase, but it's a little too early to be sure.

The gift buying seasons are over until the back-to-school rush starts, so most of them are content to merely chalk up an even figure.

Special promotions can be counted upon to see them over any rough spots. Colognes are selling well, Elizabeth Arden's Blue Grass is a particular favorite. And Lucien LeLong's and Dana's solid colognes are picking up advocates every day.

Various sales personnel feel that the ads and beauty features, suggesting that colognes and toilet waters be used as body fresheners, are at last showing definite results. Many of their customers mention this in buying their colognes.

Leg make-up shows signs of trying to make a comeback. It's a trend cosmetic departments are watching closely.

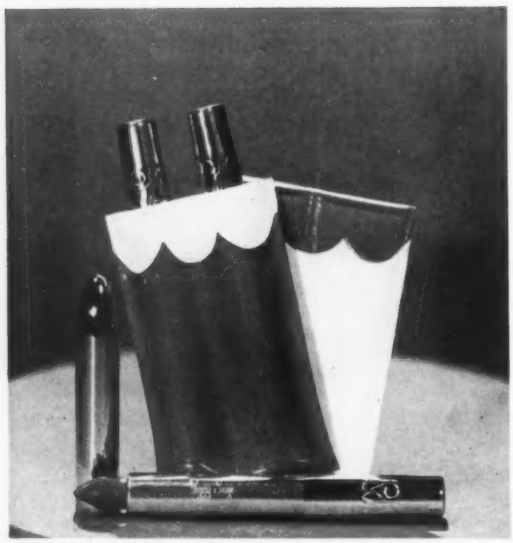
Powder, according to some sources, always shows a slight decline during the Summer months in favor of the scrubbed, cool look. Other sources say there is no basis for this, that powder is the most stabilized seller in the cosmetic market, well, that and lipstick, selling equally well during all seasons. While still others qualify the former belief by saying that many women simply switch to cream powders during Summer. The whole thing has us a little confused, too.

A temporary wrinkle-removing product called Trill is suspected to remove all wrinkles down this way, so great has been its acceptance. What amazes the buyers most about this product is not the reordering they have had to do, but rather the numerous customers who have returned for the second bottle.

Men's cosmetics did not do the land-office business expected of them during Father's Day. Too many shirt specials was the reason one cosmetic buyer gave for this.

—Maynita Gerry

Packaging Portfolio



PEGGY SAGE

PEGGY SAGE: The Peggy Sage Lipstick Convertibles are in a soft plastic envelope-type case which can be easily wiped clean. Colors are red and white or blue and white, with scalloped cuff. Set retails at $1.25.

ELIZABETH ARDEN: Available for some time for lady passengers on B.O.A.C. flights, Elizabeth Arden's Speedbird Beauty Kits are now offered for general sale for week ends, country trips, etc. Two types of kits are available at $2.50 each.

HELENA RUBINSTEIN: A new plastic container is used by Helena Rubinstein for Milk-Tone. Made with a white base, pink cover, and white, cut-in lettering, the two halves slide together and lock with one motion of the hands. A reverse motion opens the container. Price, $1.25.

ELIZABETH ARDEN

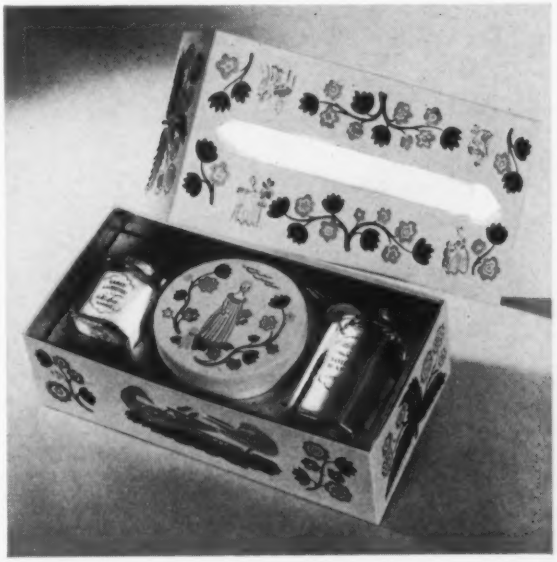
HELENA RUBINSTEIN

COLONIAL DAMES

COLONIAL DAMES: Colonial Dames has introduced Satin Tone Liquid Make-Up in a bottle of satin-like finish. Label and cap are in pink.

SHULTON: Using standard Early American Old Spice colors, Shulton has brought out a slit-cover box for face tissues, containing toilet water, dusting powder and body sachet. Retail price, $3.00.

SHULTON

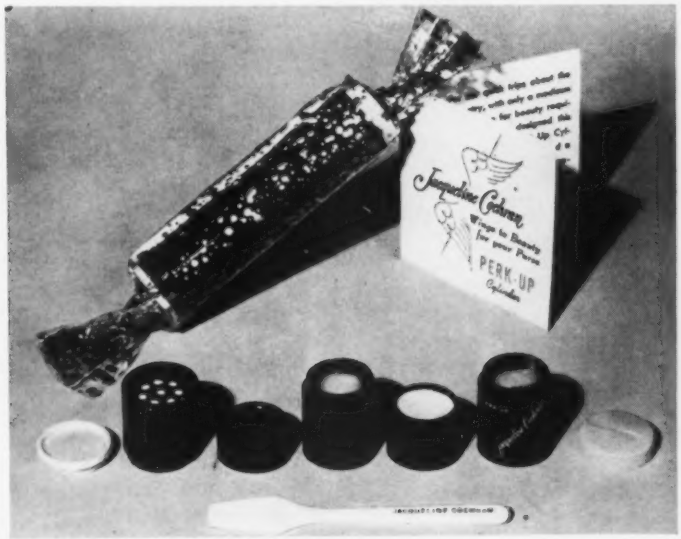


JACQUELINE COCHRAN: Perk-Up cylinder by Jacqueline Cochran is a little three and one-half inch long cylinder dividing into five sections for cosmetic needs over the week end. A spatula is included for refilling. Sells for $1.00.

RICHARD HUDNUT: Richard Hudnut has introduced its Home Permanent De-Luxe Refill Kit, packaged in a grey, black and yellow folding carton similar to the regular Home Permanent Kit. Priced at $2.00.

RICHARD HUDNUT

JACQUELINE COCHRAN



Sunburn and Suntan

A review of the several factors concerned with the burning and tanning effects of solar radiation, with emphasis upon the physiological and biochemical aspects of the dermal responses involved . . . A discussion of the theory and function of sunburn preventive agents.

DR. EMIL G. KLARMANN*

A basic scheme of the several events involved in sunburn and its sequelae has been suggested by Blum,[15] as outlined in Figure 9 on the following page.

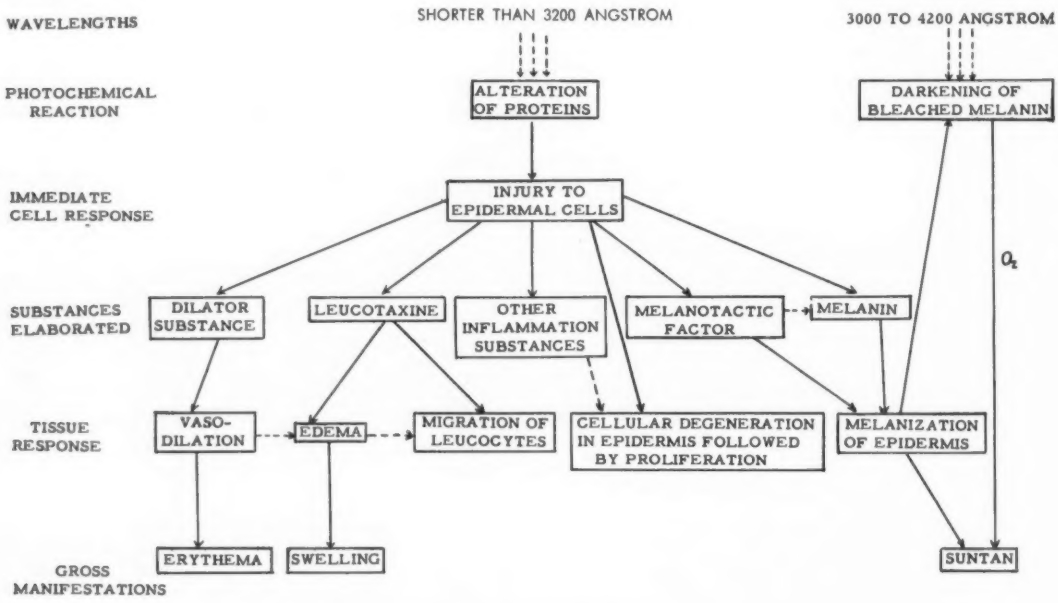


Fig. 9. *Principal Events Involved in Sunburn (Blum)*

To begin with, this scheme distinguishes between the effects caused by radiation of wavelengths shorter than 3200 Angstrom, and those of 3000 to 4200 Angstrom. The former is erythemal, the latter is directly melanogenic. The injury to the epidermal cells by the shorter wave radiation is assumed to cause first an alteration of the photolabile unconjugated proteins or nucleic acids, or both; this leads to the elaboration of the following five individual factors with specific functions: 1. dilator substance which produces erythema; 2. "leucotaxine," which causes edema and also attracts leucocytes from the blood capillaries to the injured area; 3. other inflammation products which bring about cellular degeneration in the epidermis, followed by proliferation; 4. the melanotactic factor, as well as 5., melanin itself, which ultimately leads to suntan. The longer wave radiation causes a darkening of any bleached melanin; here the presence of oxygen is required to produce tanning.

As to the several substances referred to above, the nature of the dilator substance has been the subject of considerable speculation. Lewis and Zotterman[16] assumed that it might be of histamine-like character, i.e., with the pharmacological action, though not necessarily with the chemical configuration, of histamine. Ellinger[17] and Kawaguchi[18] showed that histamine-like material is present in irradiated skin in greater quantity than in normal skin. Although photochemical production of histamine from histidine has been postulated, it is a fact that experimental introduction into the skin of histamine does not bring about pigmentation. Menkin[19] suggested that

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(Continued from the July issue.)

the migration of leucocytes due to an increase in capillary permeability in inflammatory processes is not caused by histamine, but by a new substance "leucotaxine"; the latter is thought to be involved also in edema which, too, depends upon an increased capillary permeability. The same author postulates the existence of another substance "necrosin" as being responsible for cell degeneration.[20]

Irradiated para-aminobenzoic acid (PABA) has been considered by Rothman and Rubin[21] as a factor in erythema, at least in part. Their ideas are based upon the possibility of the formation of an imine from PABA under the action of ultraviolet light, imines being known to be possessed of irritant action. Actually, irradiated PABA solutions cause an inflammatory reaction upon intradermal injection whereas non-irradiated PABA produces no such effect; incidentally the latter is true also of irradiated tyrosine and tryptophane. This would appear to point to PABA as the light absorbing agent in the skin, as well as the causative agent in erythema; yet it is a fact that no reaction is produced by irradiated PABA in the absence of oxygen whereas oxygen deprivation during exposure to ultraviolet radiation does not inhibit subsequent development of erythema. Moreover, injection of irradiated PABA does not cause pigmentation.

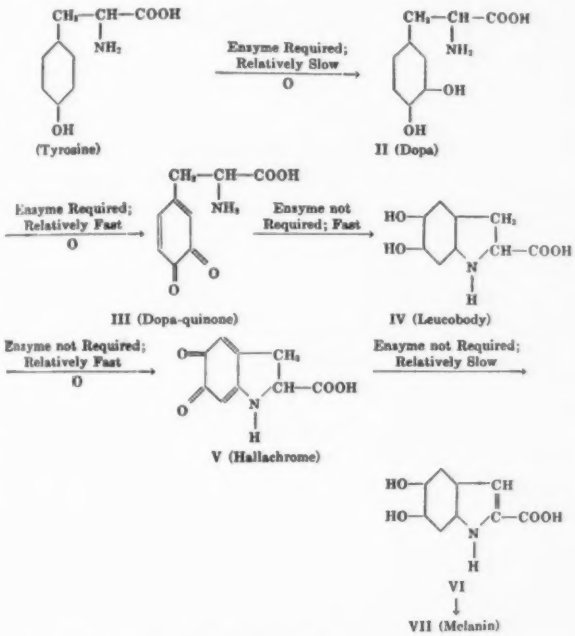
If the release of a histaminic substance into the tissue is responsible for solar erythema then one might infer that the application of an "antihistaminc" drug should have an inhibitory action upon this phenomenon. Such was the reasoning of Kurtin, Bierman and Yontef[22] who studied the effect of iontophoretic introduction into the skin of pyribenzamine upon its response to ultraviolet irradiation. On the basis of their findings they attributed an antihistaminic quality to pyribenzamine with respect to its capacity of prevention of erythema. However, this conclusion was challenged by Baer, Kline and Rubin[23] who proved that the protective action of pyribenzamine is due to the filtration by it of the wavelengths producing ultraviolet erythema, rather than to any antihistaminic action. This is further supported by the observation that benadryl, which is also possessed of antihistaminic action, displays only a minor capacity of interfering with ultraviolet erythema; the explanation is that it shows but a moderately high absorption for wavelengths around 2537 Angstrom. The same conclusion was reached independently by Friedlaender, Friedlaender, and Vandenbelt.[23] The use of pyribenzamine might be indicated, however, in those cases where advantage could be taken of its combined antipruritic and light-filtering properties (e.g., in *eczema solare*).

A somewhat puzzling observation of theoretical rather than of practical interest is that of Blum and Terus[24] on the inhibition of solar erythema by large doses of longer wave ultraviolet radiation within the sunburn active spectrum.

PIGMENT FORMATION

The pigment which develops following exposure to solar radiation conists of granules of melanin. According to Bloch,[25] melanin forms from dihydroxyphenylalamine (DOPA) under the influence of a specific enzyme. Frankenburger[26] expressed the view that other phenolic protein constituents such as tyrosin may also form melanin, and that the enzyme tyrosinase or oxidizing enzymes may promote the reaction.

In a comprehensive study of the tyrosine-tyrosinase reaction, Evans and Raper[27] showed that tyrosinase of plant origin actually is capable of oxidizing tyrosine to DOPA; the same enzyme then catalyzes the oxidation of DOPA to an indole derivative which polymerizes spontaneously with formation of melanin. Below is the reaction scheme for the *in vitro* formation of melanin from tyrosine:



While Bloch[28] demonstrated the existence of an intracellular oxidase which participates in the conversion of DOPA to melanin he was also aware of the inability of this enzyme to affect tyrosine in a like manner. Yet the presence of DOPA in animal tissue or fluids has never been proved convincingly, nor is it known just how the oxidation of tyrosin to DOPA takes place in the presence of such tissue. More recently, however, the enzymatic conversion of tyrosin to melanin has been demonstrated experimentally in several types of mammalian tissue, such as the beef ciliary bodies,[29] as well as several types of melanomas (human and animal).[30] One of the noteworthy factors is the required presence of copper for the display of this enzyme activity.

Another significant finding in the problem of the relationship between tyrosin and DOPA is that made by Arnow[31] who showed that prolonged ultraviolet irradiation of tyrosin causes the formation of traces of DOPA identifiable by colorimetric means. The relevance of this observation to the phenomenon of tanning has been questioned, however, by Rothman[32] who pointed to the long period of time required to effect conversion by tyrosine to DOPA, as compared with the comparatively short period of exposure sufficient to cause tanning. The same author showed also that traces of ferrous salts catalyze the conversion of tyrosine to DOPA by ultraviolet irradiation. This opened up the possibility that either ferrous salts or some other factors may be present in the skin to catalyze the formation of DOPA from tyrosine thereby permitting a reduction of the required period of exposure to ultraviolet light. One such factor may be a

trace of DOPA itself whose presence, according to Lerner, Fitzpatrick, Calkins and Summerson,[29] appears to promote the enzymatic conversion of tyrosine to melanin, even though little or no such action takes place in its absence. Another factor may be the inhibition of the enzymatic oxidation of tyrosine to melanin in the presence of an aqueous extract of the human epidermis, as observed by Rothman and coworkers.[33] This inhibition is assumed to be due to the presence of sulfhydryl groups which probably bind the copper required for the enzymatic activity of tyrosinase; it can be abolished by the addition of compounds which combine with the sulfhydryl group,[34] also by ultraviolet irradiation of the extracts causing the oxidation of the inhibitory sulfhydryl radicals, and thereby releasing the copper for the activation of tyrosinase.

The formation of DOPA by coupled oxidation of tyrosine with ascorbic acid, as observed by Van Arman and Jones,[35] supplies yet another possibility to be considered. The occurrence in the skin of relatively appreciable amounts of ascorbic would appear to render this mode of formation of DOPA feasible in the animal body.

For the sake of completeness it should be added that, as shown by Bloch and Peck,[36] melanin is formed under the influence of the polyphenol oxidase of myelogenic origin, from easily oxidizable substances such as epinephrine (incidentally also phenylene diamine, pyrogallol, etc.), as well as DOPA. However, DOPA oxidase is strictly specific for the levorotatory, i.e., the natural form of DOPA, as proved by Bloch and Schaaf,[28] and independently by Peck, Sobotka and Kahn.[37] A comprehensive review of the several aspects of pigment formation in skin and hair has been prepared by Peck.[38]

is shown in the range of 3300 to 4200 Angstrom, with a strong maximum at 3800 and two weaker maxima at 3600 and 4080 Angstrom. The radiation around 3650 Angstrom produces immediate tanning, but about 500 times as much energy is required of the radiation of 3000 as of that of 2967 Angstrom to produce a minimum perceptible erythema; with respect to radiation of 3663 Angstrom, the exposure ratio is 1:800.

It may be assumed that Hausser's observations, as well as those of Gisela Henschke[40] and U. Henschke and Schulze[41] as to the tanning action of radiating energy of longer waves probably apply to the darkening of preformed melanin. This assumption derives from the fact that tanning by long-wave ultraviolet does not occur in the absence of oxygen, whereas true erythema and "melanization" of the skin do not seem to be affected under similar conditions. Histological examination reveals that inflammation reactions, such as occur in the case of short wave irradiation are not found after irradiation with wavelengths over 3200 Angstrom.[42] Incidentally, a substantial portion of tan of solar origin may be due to a darkening of preformed pigment (possibly a leuco-form), as suggested by Miescher and Minder,[43] because of the greater proportion in the solar radiation of the range of 3000 to 4200 Angstrom than of wavelengths shorter than 3200; this may play a role in the case of exposures when the sun is not in the zenith, e.g., later in the afternoon or earlier in the morning. Another possibility is the partial conversion in the skin of short wave erythemal into long-wave pigmentogenic radiation.

The relative position of the erythema and tanning curves is illustrated in Figure 10, below. The vertical line in the middle of the graph indicates a change in the ordi-

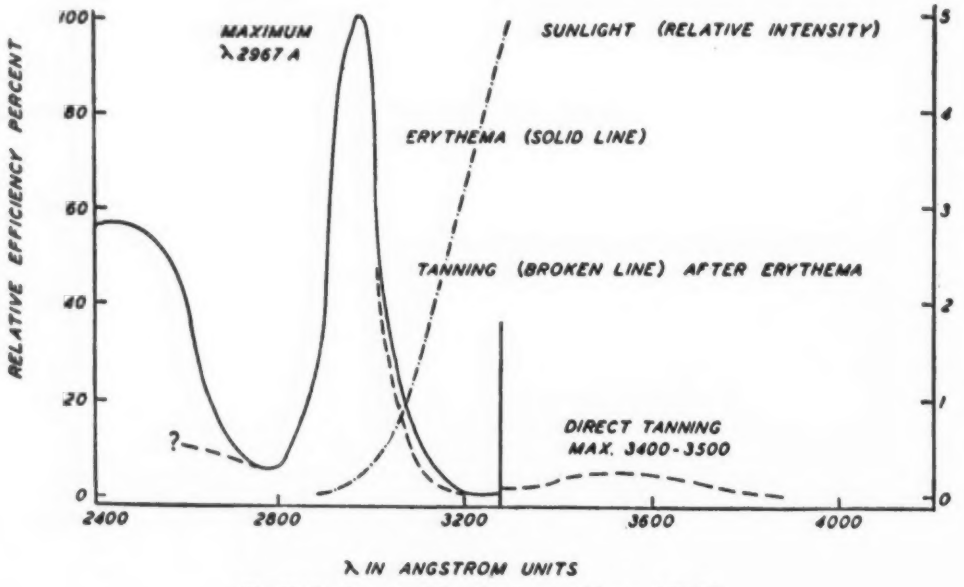


Fig. 10. *Erythema and Tanning Curves (Giese and Wells)*

At this point it would seem appropriate to mention briefly the tanning action of the longer wave radiation outside of the normal erythemal range. With the aid of the ultraviolet spectrum from an intense electric arc, Hausser[39] found that in addition to the wavelengths around 2980 Angstrom, erythemal and tanning activity

nate to the percentage scale on the right.[44] The great difference in the relative efficiencies of the short-wave erythemal and long-wave direct tanning radiations is immediately evident.

Another question of interest in this connection is that of the time elapsing between exposure and appearance

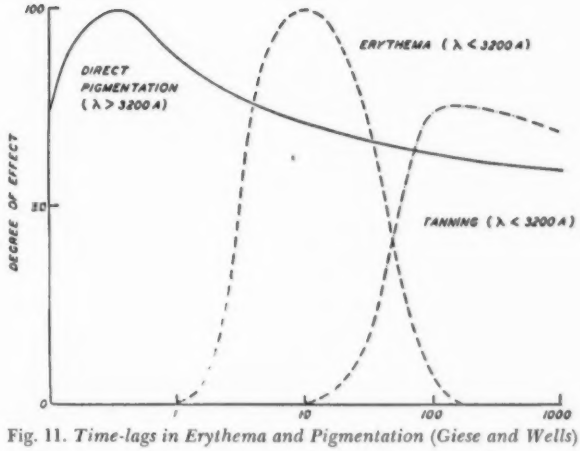


Fig. 11. *Time-lags in Erythema and Pigmentation (Giese and Wells)*

of erythema and pigmentation. The diagram below (Fig. 11) supplies the information on this point. It shows, in particular, that irradiation with wavelengths longer than 3200 Angstrom causes an immediate tanning response whereas in the case of wavelengths shorter than 3200 Angstrom the tanning response occurs after the erythema has begun to subside; the maximum of pigmentation practically coincides with the disappearance of erythema. Whereas the erythemal maximum is produced about ten hours after irradiation, the maximum development of pigmentation occurs some one hundred hours, i.e., four days later.

Pigmentation obtained through exposure to long-wave ultra-violet furnishes little or no immunity to the erythemal short-wave ultraviolet, and vice-versa.[42]

In addition to the several factors discussed above, there seem to be others involved in pigmentation. According to Hamilton and Hubert[45] sex hormones appear to play a role, in that following castration only a pasty coloring results upon exposure to solar radiation. Injection of testosterone, however, is followed by good pigmentation in both sexes of the skin previously exposed to the sun; estrone, too, seems to be involved in the tanning of women.

Reference was made to the fact that pigmentation alone does not protect the skin against erythema, at least not in its initial stages. The question arises, therefore, as to the nature of the protective mechanism which ultimately imparts to the skin a measure of immunity against sunburn. This question was answered first by Guillaume[46] who showed that solar irradiation brings about a thickening of the corneous layer of the epidermis. Guillaume's observation was confirmed by Miescher.[47] Since the corneum is quite opaque to ultraviolet light, a moderate increase of its thickness will provide a marked increase in its opacity to erythemal radiation. Of course, melanin also contributes toward absorption of the ultraviolet light, but only in the later stages when the pigment granules which are formed originally in the basal layer have migrated outward reaching the corneous layer. Incidentally, these pigment granules are shed ultimately from the skin surface. The rate of shedding varies; thus the arms lose the pigment more rapidly than the abdomen.

According to Schall and Alius[48] the maximum reduction of sensitivity of sunburned skin appears about one week after exposure, while normal sensitivity is restored about fifty to sixty days thereafter.

SUNSCREENS

Sunburn preventives should either scatter the sunlight effectively, or they should absorb the erythemal part of the sun's radiant energy. Opaque powdered materials applied either in dry form, or incorporated in suitable vehicles will serve as light scattering agents; talc, kaolin, zinc oxide, calcium carbonate, magnesium oxide and titanium dioxide belong in this class.

The true "sunscreens" which operate by absorption of the erythemal ultraviolet radiation represent a comparatively recent development. The first such product appeared in the United States in 1928; it contained, as its active agent a combination of benzyl salicylate and ben-

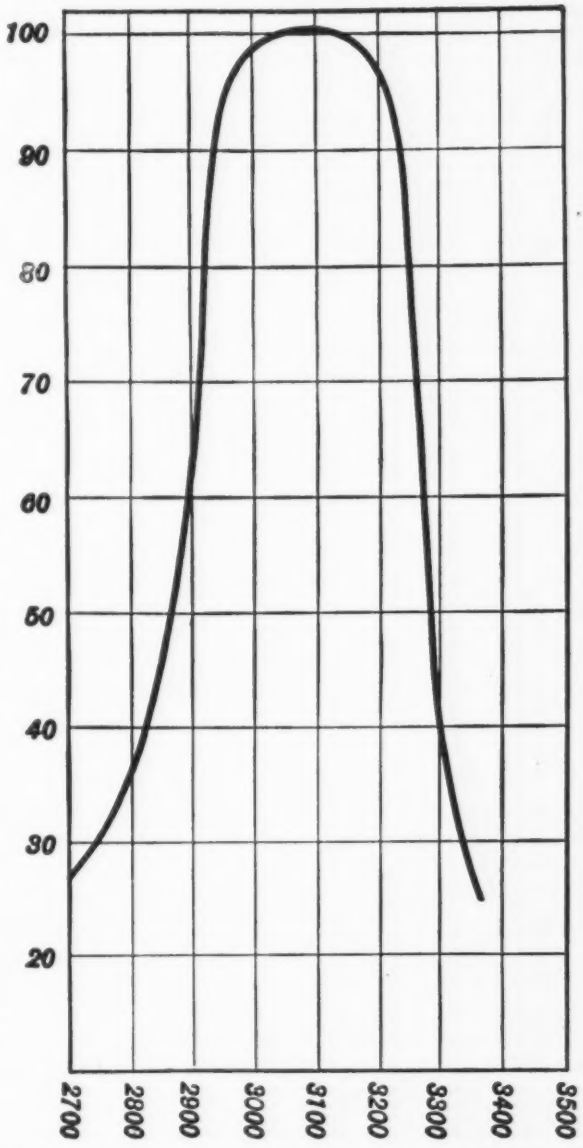


Fig. 12. *Obscuration of Erythemal Radiation by Benzyl Salicylate, (1 Per Cent Solution, 0.08 Millimeter Thickness)*

zyl cinnamate in an emulsion vehicle. Since then the number of sunburn preventives and related preparations has increased considerably.

In the case of organic dyes, the occurrence of certain cyclic structures and of unsaturated bonds contributes the chromophore factor, i.e., the carrier of color characteristics which by absorption of definite portions of visible light energy causes these materials to behave as colors. Similarly, in the case of sun screens, the occurrence in their chemical configuration of typical groupings is responsible for their capacity of absorption of energy in the invisible ultraviolet range, and particularly in the latter's erythemogenic portion.

An acceptable screening agent must satisfy a number of requirements. In addition to a capacity for absorption of the erythemogenic radiation it must show no photolability; in other words, while absorbing this radiation it must not undergo any intramolecular rearrangement, nor participate in any chemical reactions (e.g., oxidation) that would affect its absorptive capacity. The determination of the ultraviolet absorption spectrum of a given substance intended as a sunscreen, e.g., with the aid of a spectrograph, will not supply any conclusive information as to its stability under practical conditions of exposure which may, therefore, reduce its effectiveness after a longer or shorter period of time, sometimes to the point of complete ineffectiveness. Of course, a sun screen must be neither toxic nor irritant; nor must it have a record of sensitizing action. It must be non-volatile, and it must retain its activity in the presence of perspiration.

The absorptive capacity for the erythemal ultraviolet radiation of a given material may be expressed either in terms of obscuration or in those of transmission. In Fig. 12, above right, the curve for benzyl salicylate indicates effective obscuration in the erythemal range, while in Fig. 13, on the following page, the curve for isobutyl para-aminobenzoate indicates the lack of transmission in the same range. Unfortunately, there is as yet no standardization of the thickness of the film of a screening substance to be tested for its absorptive capacity. The film of a sunburn preventive left on the skin certainly does not exceed 0.05 millimeters in thickness; more likely it is not over 0.02 millimeters. There is a tendency, however, to run the ultraviolet absorption tests at a thickness of 0.08 millimeter which corresponds to a substantially heavier film than might be expected in practical application. To this extent, too, such determination will yield indicative information only with respect to the problem of the practical fitness of a given substance considered for use in a sunburn preventive.

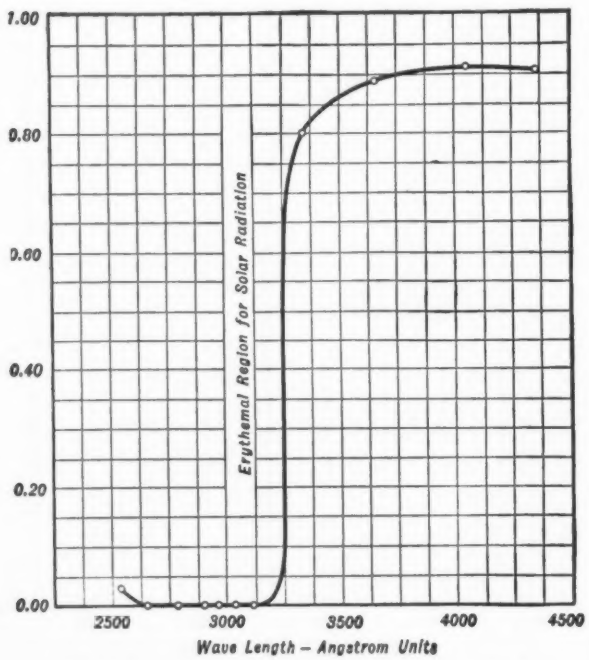


Fig. 13. *Absorption (Transmission) Curve for Isobutyl-p Aminobenzoate*

Different authors suggested different methods for the evaluation of the effectiveness of sunscreens. Since it would not be feasible to discuss them all here, Stambovsky's method[49] has been selected for illustrative purposes. It provides for the use of radiation generated by a quartz mercury lamp and filtered with Corex D glass; the latter is practically impervious to radiation of 2800 Angstrom, but it transmits fifty percent of energy of 2950 Angstrom and seventy-two percent of 3000 Angstrom.

The calibration is carried out first by determining the time required to produce the minimum perceptible erythema at a given distance from untreated, untanned skin. A five-hundred watt lamp will produce such erythema usually in one minute at a distance of twelve inches from the skin. To this end, the anterior portion of the forearm is used (which is rarely exposed to the sun and therefore retains its sensitiveness to erythemal radiation). Starting one inch below the elbow, three half-inch sectors are outlined with strips of adhesive tape. The sectors are numbered consecutively 1, 2 and 3. With a sheet of opaque paper sectors 2 and 3 are covered while sector 1 is irradiated for one minute. Then sector 2 is exposed and finally sector 3; thus sector 1 receives a total exposure of three minutes, sector 2 one of two minutes and sector 3 one of one minute. Readings are taken after about ten hours at which time the test of the particular sunscreen is started.

The preparation under investigation is applied to the other forearm in the same manner as would be used in practice. Again strips of adhesive tape are attached; but this time five sectors are exposed. Using opaque paper to cover the other sectors, sector 1 is irradiated first for two minutes, then the paper is moved so as to expose sectors 1 and 2, and radiation is continued for two minutes, etc. In this fashion at the end of the irradiation period, sector 1 will have been exposed for ten minutes, sector 2 for eight minutes, sector 3 for six minutes, sector 4 for four minutes, and sector 5 for two minutes. If after ten hours sector 2 shows a perceptible erythema while sector 3 shows no response, then the effect produced in sector 2 will be comparable to that in sector 1 of the control irradiation. Since the latter required an exposure time of one minute on the control arm against that of eight minutes for sector 2 of the test arm, the light transmission appears to have been reduced by the sunscreen to one-eighth, i.e., twelve per cent of the original. Several such tests with any given substance will increase the accuracy of determining its protective efficiency.

However, it must not be forgotten that there is no complete analogy between the erythemal radiation of the sun

and that of the quartz mercury lamp equipped with a Corex D filter. One important factor of dissimilarity is the occurrence in the solar radiation of infrared energy which induces hyperemia in the skin; this, in turn produces a stronger erythemic response than would be produced in a non-hyperemic skin. As a matter of fact preheating the skin with an infrared lamp to induce hyperemia will cause a thirty-three per cent increase in its sensitivity to ultraviolet radiation.

Similar considerations apply to other sources of ultraviolet light (e.g., carbon arcs) employed in other testing methods. This will explain why wide differences in the estimation of the protection afforded by sunburn preventives will be obtained by different methods, as shown by Blum, Eicher and Terus.[50]

As a general rule, the screening materials are not applied in their pure state, but dissolved in a suitable vehicle which may be aqueous, alcoholic, fatty or a combination of those mentioned, either in the form of a solution or in that of an emulsion. Obviously, the requirements as to skin tolerance and freedom from any undesirable features apply to the vehicle with the same force as to the "active" principle. In view of the prevalent vogue of "oiling" the skin prior to sunning, it is deemed pertinent to consider the information given in Table IV which shows that several oils of vegetable origin have a limited ability of absorption of the erythemal radiation,

TABLE IV

Ultraviolet Absorption of Several Oils (*Orelup*[58])

White Mineral Oil	0%
Coconut Oil	23%
Peanut Oil	24%
Olive Oil	23%
Poppyseed Oil	23%
Cottonseed Oil	26%
Sesame Oil	39%

sesame oil being the most effective in this regard; by contrast, mineral oil appears to be totally devoid of any absorptive capacity. The latter fact is significant in view of the recent extensive use on the beaches, etc. of certain "baby oils" of mineral oil character, probably based on the assumption of their blandness in application; it is obvious that such oils can supply hardly any protection against sunburn.

Sunburn preventives made with different vehicles will differ in their resistance to sweating, as well as to removal by water (swimming, washing) and friction (on towels, sand, etc.).[61]

The purpose of a sunscreen is not to prevent the sun's ultraviolet radiation from reaching the skin, but to reduce its intensity so as to enable the skin to build up its own protection against exposure; this is achieved primarily by the thickening of the corneum, as mentioned before.

Over a period of time, a considerable number of chemicals have become known which are suitable for use as sunscreens. Their selection for any particular formulation depends upon a number of factors among which are screening efficiency, solubility (or emulsifiability) and economy. In connection with the latter point, it should be kept in mind that the factors of economy and screening efficiency are interrelated, in that more efficient sunscreens permit the use of lower concentrations which may be more economical than the required higher concentrations of less expensive but also less effective materials.

The literature on sunburn prevention refers to numerous substances of which the following is but a partial listing:

Para-aminobenzoic acid and its derivatives (ethyl, isobutyl, glyceryl esters; para-dimethylaminobenzoic acid).

Anthranilates (i.e., ortho-aminobenzoates; methyl, menthyl, phenyl, benzyl, phenylethyl, linalyl, terpenyl and cyclohexenyl esters).

Salicylates (amyl, phenyl, benzyl, menthyl, glyceryl and dipropyleneglycol esters).

Cinnamic acid derivatives (menthyl and benzyl esters; alpha-phenyl cinnamonitrile; butyl cinnamoyl pyruvate).

Dihydroxycinnamic acid derivatives (umbelliferone, methyl-umbelliferone, methylaceto-umbelliferone).

Trihydroxycinnamic acid derivatives (esculetin, methylesculetin, daphnetin, and the glucosides esculin and daphnin).

Hydrocarbons (diphenylbutadiene, stilbene).

Dibenzalacetone and benzalacetophenone.

Naphtholsulfonates (sodium salts of 2-naphthol-3,6-disulfonic and of 2-naphthol-6,8-disulfonic acids).

Dihydroxy-naphtoic acid and its salts.

Ortho- and para-hydroxybiphenyldisulfonates.

Coumarin derivatives (7-hydroxy, 7-methyl, 3-phenyl).

Diazoles (2-acetyl-3-bromoindazole, phenyl benzoxa-

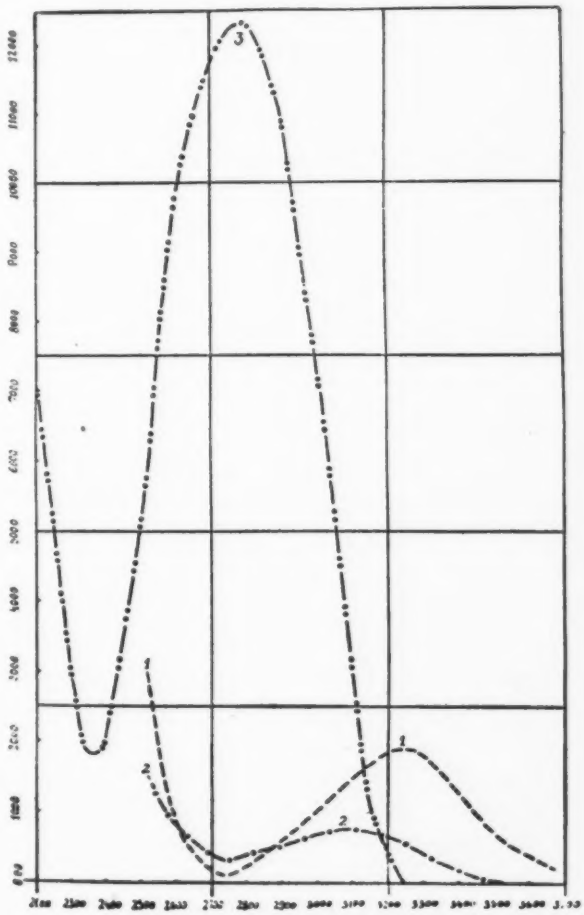


Fig. 14. *Ultraviolet Absorption Spectra of Aminobenzoic Acids; 1, Ortho; 2, Meta; 3, Para*

zole, methyl naphthoxazole, various aryl benzothiazoles).

Quinine salts (bisulfate, sulfate, chloride, oleate and tannate).

Quinoline derivatives (8-hydroxyquinoline salts, 2-phenylquinoline).

Uric and violuric acids.

Tannic acid and its derivatives (e.g., hexaethylether).

Hydroquinone.

It is not the intention here to give a complete listing of such materials, or to discuss their respective advantages and disadvantages, as this would reach entirely beyond the scope of this presentation.

It should be mentioned in passing that isomerism plays an important role in determining absorptive capacity as shown e.g. by Fig. 14, above, which gives the absorption (obscuration) curves for ortho-, meta- and para-aminobenzoic acids. The superiority of the para-isomer (curve 3) over the ortho- and meta-isomers (curves 1 and 2) is quite apparent.[63] By contrast, orthohydroxybenzoic (salicylic acid) has a high absorption value for erythemal radiation while parahydroxybenzoic acid has practically none.

The sunburn protective characteristics of local anesthetics containing the para-aminobenzoic nucleus have been pointed out also by Bird.[64]

For illustrative purposes, several type formulas are given in Table V in order to indicate the many formulation possibilities.

TABLE V

Type Formulas of Sunburn Preventives

Suntan Oil

Menthyl salicylate	10%
Sesame oil	40
Mineral oil	50
Perfume, color, antioxidant	q.s.

Suntan Jelly

Menthyl anthranilate	3%
Ceresin (65°C)	15
Peanut oil	82
Perfume, color, antioxidant	q.s.

Suntan Cream (fatty)

Dipropyleneglycol salicylate	4%
Lanolin, deodorized	25
Sesame oil	20
Mineral oil	20
Water	31
Perfume, color, antioxidant	q.s.

Suntan Lotion (alcoholic)

Isobutyl-p-aminobenzoate	2%
Propyleneglycol ricinoleate	10
Glycerol	10
Alcohol	65
Water	13
Perfume, color	q.s.

Suntan Cream (non-fatty)

A) Stearic acid	20.0%
Cetyl alcohol	0.5
Menthyl anthranilate	5.0
B) Ammonia (26°)	1.0
Sodium hydroxide	.4
Glycerol	10.0
Water	63.1
C) Perfume	q.s.

Suntan Cream (liquid)

A) Diethyleneglycol monostearate	2.0%
Stearic acid	1.5
Cetyl alcohol	0.5
Menthyl anthranilate	5.0
B) Triethanolamine	1.0
Water	90.0
C) Perfume	q.s.

"Sunshade" Ointment

Calamine	15.0%
Petrolatum, yellow	37.5
Lanolin	12.5
Water	35.0
Perfume, color	q.s.

"Quartermaster Corps" Sunburn Cream

Glycerylmonostearate	13.00%
Lanolin	4.70
Propylene glycol	4.70
Titanium dioxide	2.50
Sodium lauryl sulfate	0.05
Isobutyl-p-aminobenzoate	2.00
Isopropyl myristate-palmitate	20.00
Water	53.05
Color	q.s.

Sun Cream (N. F. VIII)

Phenyl Salicylate	5.00%
Ethyl Aminobenzoate	2.00
Titanium Dioxide	1.00
Neocalamine	1.00
Yellow Ferric Oxide	0.10
Coumarin	0.10
White Wax	2.00
Triethanolamine	0.50
Stearyl Alcohol	8.00
Stearic Acid	2.00
Glycerin	10.00
Water, dist.	68.30
Perfume	q.s.

The above formulas 1 to 6 contain several different filtering agents frequently employed in sunburn preventive formulas which are available commercially. Among them are menthyl and dipropyleneglycol salicylates, menthyl anthranilate and isobutyl-para-aminobenzoate. Other derivatives of these aromatic acids are recommended from time to time. Thus, in the very recent past[51] certain dialkyl aminobenzoates have been suggested for the purpose under discussion; they are claimed to have five to eight times the screening power of the salicylates and anthranilates, three times that of the umbelliferones and about twice that of the unsubstituted para-aminobenzoates.

Formula 7 in Table V illustrates a "sunshade," type of product, i.e., a preparation which depends for its effectiveness upon the opacity (or light scattering action) of calamine, rather than upon absorption of the ultraviolet portion of the solar spectrum. The disadvantage of this type of product derives from the need for a comparatively heavy pigment coating which imparts an unsightly appearance to the skin. Formula 8 in the same table combines the effect of a true sunscreen with that of an opaque "sunshade" (the latter by virtue of its content of titanium dioxide). Formula 9 of the National Formulary also represents such a combination, but utilizing a different screening principle.[52]

Figure 15 illustrates the absorptive capacity of eight well known, commercially available sunburn preventives (marked 1 to 8 respectively).[65] The transmission of ultraviolet energy was determined for each preparation at the four wavelengths of 2967, 3130, 3342 and 3650 Angstrom; distilled water was used as a control whose transmission is expressed as 100. (Curve A indicates the relative energy of sunlight plus skylight reaching a horizontal surface on a summer day; Curve B is that of erythemal effectiveness of ultraviolet energy for the average skin.)

It appears that the several products tested differ widely in their capacity of absorbing erythemal radiation. With regard to the wavelength of 3130 Angstrom this variation is between 0 and 53 per cent of transmission; in the

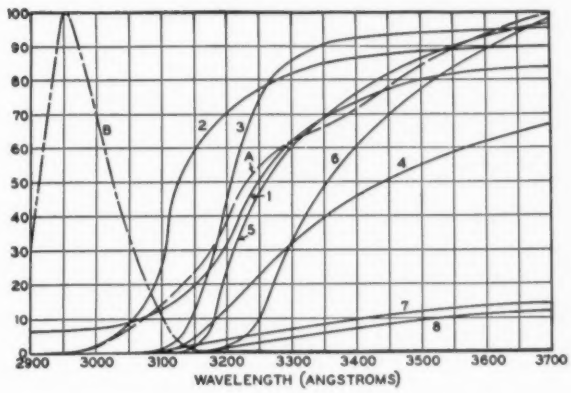


Fig. 15

strongly erythemogenic area around 2967 Angstrom seven of the eight preparations tested promise a satisfactory protective efficiency.

PATHOLOGIC AND ALLERGIC ASPECTS

While sunburn represents a pathological entity, it may also act as a precursor of less frequent and less familiar conditions such as *xeroderma pigmentosum, eczema solare, lupus erythematosus* and others, with additional factors entering into the play to produce new pathological entities. Photosensitization may be acquired, accompanied by actinic dermatitis following minimal exposure.

In the case of severe sunburn, the pain is intensified by body movement and friction, no matter how slight, against clothing or bedding. Systemic absorption of toxic matter from injured tissue produces toxemia whose symptoms may be fever, chills, edema, nausea, tachycardia, headache or a combination of any of them. While blistering may be regarded as a natural defense against too rapid an absorption of the toxic material, the exposure of denuded tissue caused by bursting blisters may open the way to local or systemic infection. Ordinarily, a sunburn does not affect the skin's tanning capacity; however, in particularly severe cases the pigmentogenic cells may be destroyed or altered, causing a loss of capacity to tan for a year or even for several years.

At this point, brief reference may be made to solar urticaria which in its symptoms compares with the urticarial hypersensitivity to certain foods and drugs, as well as to physical stimuli (mechanical, heat and cold). According to Beal[53] the spectral sensitivity in solar urticaria lies between the wave lengths of 2967 and 3341 Angstrom, with a maximum at 3131 Angstrom, which is different, therefore, from the erythemal range of sensitivity and its maximum. Urticarial sensitization may be produced passively by injecting the patient's serum into the skin of a normal individual, and subsequent irradiation of the injection site with the active wavelengths. Antihistaminic drugs such as benadryl are protective against the urticarial reaction, and with their aid tolerance to the offending radiation can be acquired following exposure to gradually increased radiation periods permitting eventual discontinuance of antihistaminic medication.

As in the case of numerous other chemicals applied externally, so also in that of sunburn preventives individual cases of hypersensitivity have been encountered. Recently Meltzer and Baer[54] described such a case of allergic eczematous dermatitis caused by an ester of para-aminobenzoic acid. It is of interest that this sensitization was preceded by one to benzocaine and to a sulfonamide (possibly sulfaguanidine); hypersensitivity to aniline and paraphenylenediamine was also present. Accordingly, this case may be regarded as one of "cross-sensitization;" it opens up the possibility of dermatitis by a sunscreen from the PABA class in those individuals who are known to be hypersensitive to paraphenylenediamine, to sulfonamides and to local anesthetics based upon the aniline structure.

Such exceptional cases do not detract, however, from the value of para-aminobenzoic acid or its glyceryl ester as sunburn preventives.[55, 56]

Berlocque dermatitis is the name for an irregular discoloration of the skin which appears occasionally upon exposure to the sun of a skin previously sprayed with Eau de Cologne.[66] At first, bergamot oil has been held responsible for this phenomenon. Later other essential oils such as those of lavender, lemon, orange, and rosemary were accused; incidentally, all of these oils are used in Eau de Cologne formulations of the original (J. M. Farina) variety. A similar reaction has been produced experimentally by the application to the skin of some of these oils, followed by irradiation.

The mechanism of these pigmentary changes, as induced by either natural or artificial light, is not well understood. It is thought to depend upon the production by bergamot oil of a local hypersensitivity to blue or violet light. Since bergamot oil usually contains some chlorophyll in solution it has been assumed that the latter plant pigment might be involved, possibly by way of photosensitization. However, it seems more likely that traces of copper which are present in essential oils (from copper containers in which these oils are kept) are concerned in causing this form of pigmentation.[67]

Berlocque dermatitis is met with rarely; avoidance of the causative factors brings about its disappearance from the affected skin areas.

Klaber[68] suggests the adoption of the generic term phyto-photodermatitis to cover skin reactions caused by external contact with plants or plant products, and subsequent exposure to light. To this extent, therefore, the Berlocque dermatitis becomes but one of the manifestations of phyto-photodermatitis.

FACTORS IN PREVENTING SUNBURN

According to Luckiesh, a twenty minute exposure of the unprotected average skin to June sunlight around noon, will produce a minimum perceptible erythema; upon a fifty minute exposure vivid erythema will result. The latter may be regarded as the maximum non-injurious skin reaction. At this point the stimulation of pigment formation is probably at its peak. Beyond it there is the painful burn resulting from an exposure of one-hundred minutes' duration or longer, and the blistering burn in the wake of a two-hundred minute long exposure.

With this as a premise, it is possible to correlate a number of pertinent variables in order to arrive at an answer to the question as to what constitutes adequate skin protection by means of a sunburn preventive. Obviously, the

effects of insolation should not go beyond the stage of a vivid erythema. Since an unprotected average skin develops this condition after about fifty minutes of exposure, it would appear that a shielding film transmitting e.g., twenty per cent of the sun's erythemogenic radiation would permit a theoretical exposure of over four hours. However, certain other factors must be considered in this picture. Thus, the average erythemal intensity of the solar radiation, e.g., between the hours of 10 A.M. and 2 P.M. is less than the maximum for the noon hour; secondly, the changing position of the sunbather prevents continuous irradiation of the same area of the anatomy for several hours. On the other hand, the proximity of reflecting surfaces, e.g., of water or snow, may intensify the erythemal effect; and as mentioned before, the concomitant infrared radiation increases the skin's susceptibility to burning by stimulating hyperemia. Finally, there are individual variations, often of appreciable magnitude, as e.g., between blondes and red-heads on one hand, and brunettes on the other. The situation as to skin tolerance changes, of course, as the sunning season progresses when the skin's defenses are bolstered by pigmentation and a thickening of the epidermis to which reference has been made previously. Other minor factors in the erythemal thresholds of individual cases are those of sweating, wetting the skin with water, etc.

For the sake of completeness, Table VI reproduces a set of figures which correlates the exposures to the ultraviolet radiation of a mercury quartz lamp shielded by a Corex D filter (A), with the corresponding exposures to June sunlight (B) and with maximum tolerated exposures (C).

Thus if a minimum perceptible erythema is produced

TABLE VI

Correlation of Skin Tests with Estimated Practical Exposure Periods.

A Minutes	B Minutes	C Minutes
20	96	240
19	95	237
18	94	235
17	93	232
16	91	228
15	90	225
14	88	221
13	87	217
12	85	212
11	83	207
10	80	200
9	78	194
8	74	184
7	70	175
6	65	162
5	60	150
4	53	133
3	45	113
2	34	85
1	24	60
0	0	0

by the mercury quartz lamp upon a protected skin, e.g., in fourteen minutes (an unprotected skin would have developed a minimum perceptible erythema following a one minute's irradiation, as mentioned before) a comparable effect would be produced by June sunlight in eighty-eight minutes; in this case the maximum length of a safe exposure whose effect would not go beyond a vivid erythema, would be two-hundred and twenty-one minutes or almost four hours.

NOTES ON THE TREATMENT OF SUNBURN

While the several preceding paragraphs refer entirely to the prevention of sunburn by reduction of the intensity of the sun's ultraviolet radiation, a few remarks may be in order here on the subject of treating sunburn which has been contracted as a result of injudicious exposure. Of course, serious burns require a physician's attention. Less serious but painful conditions call for the topical use of palliative preparations, preferably of liquid or low viscosity character in order to avoid further irritation by pulling the skin in the process of application; the addition of a mild antiseptic will minimize the risk of infection. Tannic acid solutions which at one time used to be recommended for the treatment of different burns, including sunburn, no longer enjoy medical approval. While oil-in-water lotions are both cooling and soothing in action, oils and greases are contraindicated because they tend to block the escape of heat, and also because they may interfere with the action of the analgesic and antiseptic ingredients.

For the sake of illustration several formulas of simple palliative mixtures are listed in Table VI below.

TABLE VI

Palliative Mixtures for the Treatment of Milder Cases of Sunburn

Cooling Lotion (Calamine Type)

Zinc oxide	15.0%
Talc	15.0
Bentonite	5.0
Propylene glycol	5.0
Water, dist.	6.0

Astringent Lotion, Mild

Zinc sulfocarbolate	3.0%
Propylene glycol	5.0
Camphor water	92.0

Cooling Emulsion

Mineral oil, light	10.0%
Lanolin	2.5
Triethanolamine oleate	5.0
Propylene glycol	2.5
Water, dist.	80.0

Although the propylene glycol content of these formulations contributes a moderate antibacterial action, more effective antiseptics may be incorporated where needed to combat the risk of infection (e.g. 8-hydroxy-quinoline sulfate, parachlorophenol, hexylresorcinol, etc.)

LABELING AND ADVERTISING

To the extent that a given product is represented as a preventive or a treatment for sunburn it is a "drug" within the meaning of this term as defined by the Federal Food, Drug and Cosmetic Act, and must be labeled accordingly. Among other things the label of a drug product is required to state the active ingredient or ingredients to which the prophylactic or therapeutic effect is attributed.[57]

However, if a product is represented merely as a means of acquiring a tan, it may be labeled as a "cosmetic"; rele-

vant provisions of the Act do not require a statement of the active ingredient for this type of representation.

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Scottish Trade Fair

Scotland is planning a Trade Fair, with the date tentatively set for September 1949. At this time, the Kelvin Hall in Glasgow is considered to be the location. This will be a fully international event on British Industries Fair lines, with space available to all.

This move has been sponsored by the Scottish Council (Development and Industry) which aims at a five-point program. This will give international publicity to Scottish goods, encourage inter-trading between Scottish firms, demonstrate to Scottish workers their finished products, and increase efficiency and quality of design by making available obvious comparisons. The response from potential exhibitors is said to be sufficiently strong to predict a major Trade Fair.

Cosmetic Excise Tax Collections

Tax collections for the twelve months ending May 1949 are:

	1949	1948	1947
January	9,648,063	10,371,512	
February	12,984,776	12,290,714	
March	6,796,181	6,927,991	
April	6,913,884	6,927,991	
May	6,983,445	6,660,851	
June	7,625,450	7,283,509	
July		7,332,070	7,813,611
August		7,506,518	6,392,678
September		6,890,757	6,733,695
October		6,335,804	7,048,093
November		6,872,541	5,386,690
December		8,079,746	8,545,762

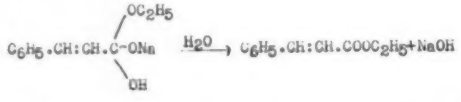
"Your perfume got him, only he thought it was my macaroni and cheese!"

Reactions of Aromatic Aldehydes

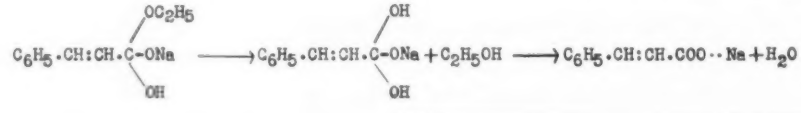
The more important reactions of aromatic aldehydes are here presented and discussed . . . These aromatic compounds are widely used in the pharmaceutical, dye, insecticide, flavor and perfumery industries.

DR. KURT KULKA*

THE mechanism of the Claisen condensation was investigated by Scheibler and Friese,[66] who explained that the ester (ethyl acetate is enolized by the sodium or sodium ethoxide and reacts as the enol-sodium-salt, forming an addition compound with benzaldehyde. By hydrolysis, the desired ethylcinnamate, together with sodium hydroxide is produced:



In a side reaction, sodium cinnamate, ethyl alcohol and water is formed:



Scheibler and Friese found that the yield of the desired cinnamic ester can be increased considerably by using metallic sodium instead of the sodium alcoholate and by removal of the alcohol which is produced during the reaction. This was accomplished by an azeotropic distillation of the alcohol with ethyl acetate. The following procedure gave a yield of 82.4 per cent ethyl cinnamate and 14 per cent sodium-cinnamate: 9.2 g. sodium wire are added gradually to a mixture of 42.4 g. benzaldehyde and 52.8 g. ethyl acetate. At the start of the reaction, cooling is applied. Finally the mixture is heated on a steam bath until all the sodium has completely reacted. The residue is treated twice with 40 cc. ethyl acetate for ½ hour on a steam bath and the ethyl acetate distilled off each time. The remaining product is decomposed with dilute sulphuric acid and extracted with ether. From the ether layer the cinnamic acid is recovered with aqueous sodium carbonate solution, the cinnamic ester is isolated by distillation.

In spite of the excellent yields which are obtained in the Scheibler-Friese modification of the Claisen condensation, the drawback of this method, for production purposes, lies in the use of metallic sodium. This was pointed out by H. Wachs,[67] who replaced sodium by metals of the earth alkali group and found that calcium or magnesium may be used in the Claisen condensation. However, in this case higher temperatures are required which promote side reactions.

As a possible replacement for sodium in Claisen type reactions, sodium hydride was suggested by Hansley and Carlisle.[68] Thus benzaldehyde and methylacetate will react according to:

$$C_6H_5.CHO + CH_3.COOCH_3 + NaH \rightarrow C_6H_5.CH{:}CH.COOCH_3 + NaOH + H_2$$

In order to start the reaction, the addition of a trace of methyl alcohol is necessary.

BENZOIN CONDENSATION

Under the catalytic influence of the "cyanide" ion, which in this case is usually supplied by an ionized salt of hydrocyanic acid, benzaldehyde will react with itself in a "restricted" aldol condensation, to form benzoin. The reaction proceeds according to the following equation:

When a mixture of 625 cc. 95 per cent alcohol, 500 cc. water, 476 g. (4.7 mol.) benzaldehyde and 50 g. NaCN (96-98 per cent) is refluxed for ½ hour, crude benzoin is recovered from the cooled reaction mixture in a yield of approximately 90-92 per cent.[69]

In the aliphatic series this type reaction is considered only rarely because aldolization prevails.

Mixed benzoins are formed by the reaction of two different aromatic aldehydes and a general method is to add a mixture of molecular proportions of these aldehydes to a boiling alcoholic potassium cyanide solution.

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(Continued from July issue.)

Various mixed benzoins were prepared by J. S. Burke and W. S. Ide[70] for example: benzpiperoin: A saturated alcoholic solution of 15 g. piperonal is added during 1¾ hours to a boiling solution of 10.6 g. benzaldehyde in 120 cc. of 50 per cent ethyl alcohol, containing 5 g. potassium cyanide. The oil layer will crystalize and after recrystallization a yield of 28 per cent is obtained. The benzoin from o-chlorobenzaldehyde and veratric aldehyde was obtained in a yield of 70 per cent by refluxing for 2 hours a solution of 8.3 g. veratric aldehyde, 7 g. o-chlorobenzaldehyde and 4 g. KCN in 75 cc. of 50 per cent alcohol.

Mixed benzoins can be furthermore obtained by reacting benzoins with a second aromatic aldehyde in an aqueous alcoholic KCN solution. This procedure has, however, no practical advantage over the previously outlined direct method and was primarily conducted to prove the reversibility of the benzoin condensation according to:

$$_2C_6H_5.CHO \longleftrightarrow C_6H_5.CHOH.CO.C_6H_5$$

Under the influence of the enzyme present in fermentation yeast the benzoin condensation of benzaldehyde with acetaldehyde (which is formed during the fermentation) is accomplished according to Carl Neuberg and benzacetoin: $C_6H_5.CHOH.CO.CH_3$ is obtained.

HCN ADDUCT (CYANOHYDRINS) PREPARATION OF MANDELIC ACID

By the interaction of NaCN on the sodium bisulfite compound of benzaldehyde a cyanhydrin is formed, which is hydrolized by HCl to mandelic acid. The reaction proceeds according to:

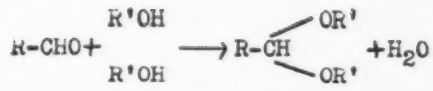
$$C_6H_5CHO + NaHSO_3 \rightarrow C_6H_5CH\,(OH)\,(SO_3Na)$$
$$C_6H_5CH\,(OH)\,(SO_3Na) + NaCN \rightarrow$$
$$C_6H_5CH\,(OH)CN + Na_2SO_3$$
$$C_6H_5CH\,(OH)CN + HCl \rightarrow {}_2H_2O \rightarrow$$
$$C_6H_5CH\,(OH)COOH + NH_4Cl$$

Mueller[71] obtained mandelic acid in a yield of 50-55 per cent by isolating the sodium bisulfite compound of benzaldehyde and proceeded according to the above outlined method.

A simplified procedure[72] consists in forming the sodium bisulfite compound of benzaldehyde in the presence of NaCN, thus preparing the nitrile in one step, in the following manner: 150 g. sodium cyanide dissolved in 500 cc. water and 318 g. benzaldehyde are placed into the reaction flask. A saturated solution of 850 cc. sodium bisulfite is added under agitation over a period of 15 minutes. The reaction mixture is cooled by adding 900 g. of crushed ice during the first 7-8 minutes. The reaction product separates into two layers. The water part is extracted with benzene and after removal of this solvent the remainder is added to the main part of mandelonitrile. The nitrile is hydrolyzed over a period of 12 hours in the cold with 425 cc. conc. HCl. The excess water and HCl is then evaporated from a steam bath. From the completely dry material the mandelic acid is extracted with hot benzene, leaving ammonium chloride as residue.

ACETAL FORMATION

Acetals are formed by the reaction of the carbonyl group with two alcoholic hydroxyl groups according to the following equation:



They are therefore the di-ethers of alkylidene glycols in which two ether oxygen atoms are attached to the same carbon atom.

This reaction proceeds under the catalytic influence of a small amount of mineral acid such as sulfuric or hydrochloric acid or toluensulfonic acid.

The direct acetalisation follows the rules of the mass law[73] and therefore, in order to drive the process to completion, one of the reactants is usually applied in excess. Furthermore the water of reaction should be removed as soon as it is formed. This can be accomplished by adding an inert solvent to the reaction, which serves as a water carrier in an azeotropic distillation.

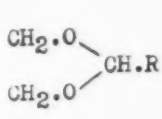
The reactivity and conversion rate of the various alcohols and aldehydes varies. The following holds true as a general rule: Methanol reacts slowly but gives the greatest conversion; the conversion rate of primary alcohols is usually good; secondary and tertiary alcohols react fast but their grade of conversion is low. Polyhydroxy alcohols react fast and completely, particularly with aromatic aldehydes. Aliphatic and arylalkyl aldehydes react slowly but more completely than aromatic aldehydes, unless their carbonyl group is activated by a negative group, for example the nitro group in o-nitrobenzaldehyde.

Fischer and Giebe[74] prepared different acetals by reacting the aldehydes with 4-5 times the amount of alcohol, applying 1 per cent HCl as catalyst. Thus benzaldehyde diethylacetal was obtained in a yield of 50 per cent, after the mixture was refluxed for 60 hours. Anisic aldehyde-dimethylacetal was obtained in a yield of 40 per cent and piperonal dimethylacetal in a yield of 35 per cent. The aromatic oxy-aldehydes (vanillin, p-hydroxybenzaldehyde, etc.) do not lend themselves well to this type of reaction.

The readiness of aromatic aldehydes to form acetals with poly-hydroxy alcohols was recognized early by E. Fischer[75], who applied this fact in the separation and purification of various sugars. Dibenzalerythritol was prepared by dissolving 1 part erthritol in 3 parts of 50 per cent sulphuric acid, to which 2 parts of benzaldehyde was added under agitation. The crystalline reaction product formed after a short while. It was washed neutral with water and recrystallized from alcohol. Erthritol was recovered by decomposing the benzal-compound with diluted sulphuric acid.

Various acetals were obtained by W. Gerhardt[76] by combining aromatic aldehydes with different polyhydroxy-alcohols and heating this mixture until the water of reaction was completely removed.

Verley[77] found that under the catayltic influence of phosphoric acid, glycols readily form acetals of the structure:



Recently André Dupire[78] reacted glycols and benzaldehyde without a catalyst, removing the water of reaction by an azeotropic distillation. In some cases a vigorous re-

action took place. Quantitative yields, mainly of the 1, 2-acetals were obtained.

In the acetalization procedure introduced by Claisen[79] the aldehyde is reacted with an orthoformic ester according to:

$$R.CHO + HC(OC_2H_5)_3 \rightarrow R.CH(OC_2H_5)_2 + HCOOC_2H_5$$

To bring about the reaction, the aldehyde and a small excess of orthoformic ester are dissolved in about 3 mol. of absolute alcohol and a small amount of a mineral acid or ammonium chloride is added as a catalyst.

The reaction mass is heated to reflux for a short period or permitted to stand at room temperature over a longer period of time. This method is applied to secure good yields in many cases where the direct acetalization does not give satisfactory results. As an example the preparation of benzaldehyde di-ethylacetal, which gave a yield of 97 per cent, will be described: 37.5 g. benzaldehyde, 57 g. orthoformic ester, 49 g. alcohol and 0.75 g. powdered ammonium chloride or 0.06 g. HCl are refluxed for 10 minutes. After neutralization with alcoholic KOH the solvent is removed by distillation, the residue treated with water and extracted with ether. From the dried ether extract, the acetal is recovered by fractionation.

The acetals of other aromatic aldehydes, such as anisic aldehyde and piperonal were obtained in a similar way with yields of 96 per cent.

Comparative data on the yield of acetals resulting from the interaction of aldehydes with aliphatic ortho esters in the presence of small amounts of sulphuric acid were presented by H. W. Post[80]. The highest yield resulted from benzaldehyde and ethyl-orthoformic ester. The monohydroxybenzaldehyde gave only low yields. M-toluic aldehyde gave a yield of 58 per cent, the p-isomer a yield of 16 per cent and the o-isomer only a trace of the acetal.

There are other methods known for the preparation of acetals, which do not start from the aldehydes.

Bodroux[81], and independently Tschitschibabin[82], discovered that orthoformic ester, can be reacted with organo-magnesium-halides to form acetals according to the equation:

$$CH(OC_2H_5)_3 + R'MgX \longrightarrow R'CH(OC_2H_5)_2 + C_2H_5O.MgX.$$

To start the reaction, the components are dissolved in ether and this solvent distilled off. To complete the reaction, the remaining residue is heated on a steam bath. This method is not only useful for the preparation of acetals, but it is important for the preparation of aldehydes, which could not be obtained by other means.

Recent studies made by Lee Irvin Smith and Milware Bayliss[83] revealed that in order to obtain satisfactory yields in the Bodroux-Tschitschibabin reaction, the following rules must be observed:

1. Equi-molecular quantities of the Grignard reagent and the orthoformic acid ester in ether solution must be used.
2. After mixing the components, the reaction mixture should stand for 15 hours at room temperature.
3. Thereafter the ether should be removed by distillation and the residue heated for a period not longer than 15 minutes.

The following technique is suggested: Washed and dried magnesium turnings are placed in the reaction flask and 10 cc. of ether and a crystal of iodine are added. The halogen compound is mixed with an equal amount of ether and about 10 cc. of this solution is dropped into the reaction flask. After the reaction has started, enough ether is added to the halogen compound to bring the total up to 4.5 mol. for 1 mol. of the halogen compound. Under efficient agitation, this solution is introduced slowly to the reaction. After the addition is completed, the agitation of the Gregnard solution is continued for 15 minutes under reflux; then under continuous agitation the orthoformic acid ester, dissolved in an equal volume of ether is added slowly. The reaction mass is worked up in the above described way.

The application of acetals in perfume compounds has been the topic of several interesting papers[84] and only a few significant facts about acetals in general shall be mentioned here. Acetals are decomposed into their parent reactants (alcohol and aldehyde) in aqueous medium by small amounts of acids, whereas they are quite stable under alkaline conditions. This fact makes them particularly useful and often superior to the aldehydes in soap perfumes.

Acetals have usually a milder, in some cases a more flowery scent than the corresponding aldehydes.

During the aging of perfumes, which constitutes a slow chemical reaction, acetal formation takes place. A similar observation can be made in the ripening of wine.

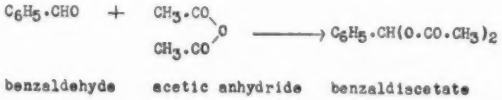
In synthesis, acetalization is often applied to protect the aldehyde group, for example in the hydrogenation of other active groups.

ADDITION OF ACID-ANHYDRIDES TO AROMATIC ALDEHYDES

Semmler[85] discovered that aldehydes of the $R\text{-}CH_2.CHO$ structure react in their enol form with acetic anhydride and sodium acetate. Thus the enol acetates are obtained, for example from:

Aromatic aldehydes are, due to their tertiary structure, incapable of enol formation and will react with acetic anhydride and other acid anhydrides, to form the respective di-ester.

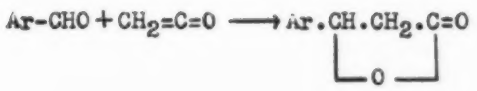
For example:



The reaction proceeds under the influence of different catalysts, namely: acetic acid[86], sulphuric acid[87], copper sulfate, zinc chloride and ferric chloride[88].

REACTIONS OF AROMATIC ALDEHYDES WITH KETENE

Aromatic aldehydes react with ketene, the inner anhydride of acetic acid, to form primarily β-lactones:



Hugh J. Hagenmeyer, Jr. who describes various reactions of ketene[89] points out that according to conditions, these β-lactones react further in two ways:

a) by carboxylation to form styrenes,

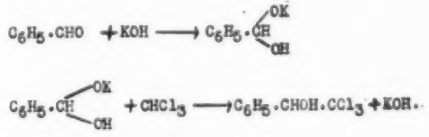
b) to form the linear polyester of these lactones which are depolymerized on distillation, passing into the α-β-unsaturated acids.

Accordingly, styrene was prepared in good yield from benzaldehyde and ketene by using boric acid and zinc chloride as catalyst, acetone as solvent and conducting the reaction at 0-10 deg. C. By raising the temperature to 60 deg. C. and applying sodium acetate as a catalyst, the reaction mass yielded by destructive distillation 40-60 per cent of cinnamic acid.

ADDITION OF CHLOROFORM TO BENZALDEHYDE

Trichloromethylphenylcarbinol is prepared from benzaldehyde and chloroform in the presence of powdered KOH according to Journ. Russ. Phys. Chem. Ges. 29.87-103, or according to J. W. Howard[90] who proceeds in the following manner: To a cooled and well agitated mixture of 50 g. benzaldehyde, 50 g. chloroform and 50 g. ether, 10 g. powdered KOH is added gradually. The reaction mixture solidifies but becomes partly liquid after standing over night. After filtration, the carbinol is recovered by fractionation of the filtrate.

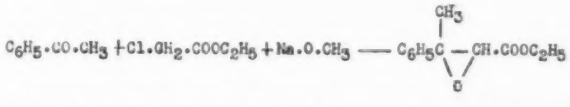
The reaction is assumed to proceed according to the following equation:



THE PHENYL-GLYCIDIC ESTER—SYNTHESIS

The preparation of phenylglycidic esters by reacting acetophenone, or benzaldehyde with ethylchloroacetate was originated by Erlenmeyer in 1892[91] and was investigated by Claisen[92] who used sodium amide as the condensing agent and by Darzen,[93] who used sodium alcoholate for the same purpose.

In the case of acetophenone, the reaction takes place as follows:



and phenylmethylglycidicethylester (so-called Strawberry aldehyde) and NaCl and $CH_3.OH$ are obtained; in the case of benzaldehyde, the main reaction product is:

Ethylphenylglycidate

However, in this case, as a side reaction, an aldol condensation takes place and α-chloro-cinnamic-ethylester is formed according to:

$$C_6H_5.CHO + H_2ClC.COOC_2H_5 \rightarrow C_6H_5.CH{:}CCl.COOC_2H_5 + H_2O$$

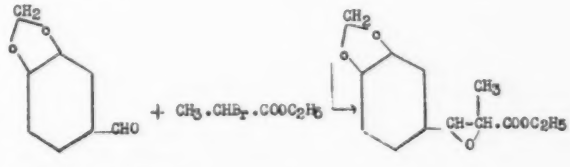
The extent of this side-reaction depends partly on the nature of the solvent used. Rutovski and Deav[94] using sodium as the condensing agent, found that only 5 per cent of α-chloro-cinnamic-ethylester is formed when ethyl-ether is the solvent, whereas a considerably higher amount of this ester is produced when the reaction proceeds in toluene solution.

The preparation of ring-substituted phenylglycidic esters was first accomplished by Darzen, who used different aromatic aldehydes, for example anisic aldehyde, piperonal, etc. in this type of reaction. Rosenmund and Dornsaft[95] prepared the same and other substituted phenylglycidic esters in the following manner: 20 g. anisic aldehyde and 18 g. chloroacetoethyl ester are dissolved in ether. The mixture is cooled and 4.9 g. sodium in small pieces are added. The reaction starts by the addition of a few drops of alcohol and is completed by permitting the reaction mass to stand at room temperature for several hours after the sodium has reacted. The ester is recovered by extraction with ether. The residue consists of NaCl and a small amount of the sodium salt of methoxyphenylglycidic acid.

A similar result was obtained in a similar way, by the reaction of 5 g. piperonal, 4.1 g. chloroaceticethylester and 1 g. sodium.

By varying the alkyl part of the halogen ester, still other derivatives are obtainable by this type of syntheses. The preparation of β-3, 4-methylendioxyphenyl-α-methylglicidicethylester may serve as an example.

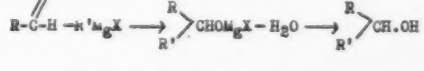
Elks and Hey[96] obtained this ester in a yield of 48 per cent in the following way: 50 g. piperonal is treated for 4 hours at 0 deg. with 61 g. of ethylester of bromopropionic acid using 23 g. of sodium ethoxide as the condensing agent. To complete the reaction the mixture is agitated for 12 hours at room temperature and then for 6 hours on a steam bath.



THE GRIGNARD REACTION

The Grignard Reaction is probably one of the most important procedures of organic chemistry, because of the great number and of the different types of new products which it made available.

The organomagnesium-halide, known as the Grignard reagent, is prepared by an organic halide with magnesiums in the presence of ether and will react with aldehydes to give secondary alcohols according to:



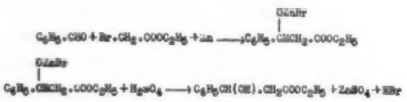
The preparation of ethyl-phenyl-carbinol: $C_6H_5.CH(OH)C_2H_5$ is an example of this well known reaction: 42 g magnesium ribbon (1.75 atoms) are reacted with 163.5 g. ethylbromide (1.75 mol.) dissolved in 1,500 cc.

ether. To this Grignard solution, 1 mol. of pure benzaldehyde, dissolved in 125 cc. ether is added under ice cooling, over a period of 1 hour. The reaction mass is permitted to stand at room temperature for 16 hours, thereafter it is decomposed with diluted HCl and the ethylphenyl-carbinol recovered by distillation with a yield of 96 per cent.

THE REFORMATSKY REACTION

The condensation of a carbonyl compound and an ester of a halogen substituted acid in the presence of zinc, is used as a means of preparation of hydroxy-acid-esters. This reaction was discovered by Reformatsky and is closely related to the Grignard Reaction.

An example in which the carbonyl compound is benzaldehyde and the reaction product β-phenyl-β-oxypropionic ethylester proceeds according to:



The following procedure[97] is suggested: 83.5 g. (½ mol.) ethyl-bromoacetate and 65 g. (0.61 mol.) benzaldehyde are dissolved in 80 cc. dry benzene and 20 cc. absolute ether. 10 cc. of this solution and 40 g. of powdered, cleaned zinc, are placed into the reaction flask and the process is started by warming the mixture. The remainder of the solution is added gradually at such a rate, that a gentle reflux is maintained. Thereafter, refluxing for about ½ hour completes the reaction. The cooled reaction mass is hydrolyzed with 200 cc. cold 10 per cent sulpuric acid. The benzene layer is separated and treated with diluted sulphuric acid, then neutralized with sodium carbonate solution and finally washed with water. From this benzol solution, the ester is recovered in a yield of 61-64 per cent.

The hydroxyester can be dehydrated by various methods, for example by applying acetic anhydride or dry HCl on a steam bath. The unsaturated ester obtained may be saponified to the corresponding unsaturated acid. In the above described example, cinnamic acid is obtained.

INTERACTION OF DIAZOMETHANE ON AROMATIC ALDEHYDES

The conversion of aldehydes into methyl ketones by means of diazomethane, according to:

$$R\text{-}CHO + CH_2NH_2 \rightarrow R.CO.CH_3 + N_2$$

was described by Schlotterbeck.[98] He obtained a 97 per cent yield of acetophenone by treating benzaldehyde dissolved in ether with diazomethane over a period of 10 days at room temperature.

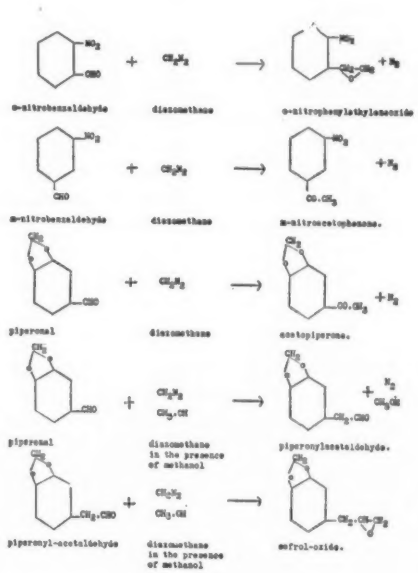
Due to its high toxicity and the care which has to be taken in preparing and handling diazomethane, this particular process is of little commercial value, however, due to the investigations of Arndt and Eistert[99] the reaction of diazomethane with other aldehydes is of interest. It was shown that the reaction is not a methylation as previously assumed, but that an addition to the carbonyl group takes place first, followed by splitting off of nitrogen.

Actually 3 reactions are taking place, namely:

1) Formation of the respective ethylene oxide,
2) Formation of the respective methyl ketone,
3) Formation of a homologous aldehyde.

According to conditions and the nature of the radical of the carbonyl compound,[100] one of these 3 reactions will predominate.

Examples are:



REACTIONS OF AROMATIC ALDEHYDES WITH AMINO COMPOUNDS

Aromatic aldehydes and aldehydes in general are often identified as oximes, hydrazones, semi-carbazones, etc., which are formed by the reaction of the aldehydes with amino compounds such as hydroxylamine, hydrazine, semi-carbazide, etc. With aniline, aldehydes form the so-called Schiff's bases.

These reactions are similar to aldol-condensations; a primary addition takes place, then the hydroxyl-compound formed passes into the unsaturated compound under the loss of water.

Langlais and Bollinger[101] suggested a determination of aldehydes by the measurement of the water formed in their reaction with aniline.

Only a few compounds are used in perfumery which have nitrogen in their molecule; one of them, credited with having a faint heliotrope-like odor is a Schiff-base which results from the reaction of the ethylester of p-aminobenzoic acid with anisic aldehyde.[102]

In a survey of Schiff bases, useful in perfumes, made by F. W. Welles,[103] the condensation products of various aromatic aldehydes with esters of anthranilic acid is mentioned.

This series of papers dealing with reactions of aromatic aldehydes does not lay claim to completeness. Because of the varied reactivity of the aldehydes, complete coverage would be difficult to achieve. The attempt was made, however, to cover the more important reactions and it is hoped that the variety of types of reactions

which the aromatic aldehydes will undergo has been demonstrated.

ACKNOWLEDGEMENT

The author wishes to express his appreciation to Dr. Herman Wachs, Director of the Laboratories of Dodge & Olcott, Inc. for his valuable criticism and suggestions and to Dr. A. J. Shukis, Assistant Research Director of Dodge & Olcott, Inc. for reviewing the manuscript.

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Profit Building Through Perfume Bars

What place has the perfume bar in the average department store? Where should it be located? The idea of a bar is not new, but when Carson Piere Scott & Co., Chicago, opened one four years ago, away from the cosmetic counters, it was an unorthodox move. The space taken was at the foot of the escalator. The location had, for some years, been used as a bargain booth.

The choice of location caused widespread comment in the city. The idea seemed absurd. Yet the volume of business done exceeded the highest figure anticipated. Many women would purchase a dram, or even two or three, and later come back for an ounce. New fragrances were introduced in this manner. The idea which was considered extreme, in a poor location, has been followed by hundreds of stores across the country. However, few of them have had the success of the Carson bar. Part of this is attributed to the fact that the Carson bar made no attempt to sell other items in the section. The girls only sold perfume, and they sold a great deal of it.

Girls were especially trained for the work: Hands had to be very steady and eyes most accurate in measuring exact amounts. They also had to learn to seal and wrap bottles.

In checking back on figures, the perfume bar sold more than double the amount of perfume sold in the regular department in 1939. During the war years volume increased tremendously. The Carson bar was a radical move, but one which today is building new profits for the department.

Lipstick Examination

The following procedure has been found to be simple and rapid for the preparation of slides for the microscopic examination of lipsticks: Place about 0.2 gm. of the sample on a microscopic slide and cover with a glass. The slide is then placed on a water bath or steam table, causing the sample to melt and to spread under the cover glass. Adhesion confines the melting paste to a geometrically defined area, depending upon the type of cover glass used. This results in a neat preparation, offering an excellent microscopic picture of the lipstick paste.—Dr. Jack B. Nagler, Charles of the Ritz, Inc., Norwalk, Conn.

How Dram Bottle Sales Started

Fifteen years ago, in a Middle West store, perfume sales in dram bottles averaged $2,000 to $3,000 per day over a long period of time. This, we understand, is the way it happened. A glass maker was stuck with cut-glass dram perfume bottles. No one wanted to buy. Finally a Midwestern buyer was in the East looking for bottles and heard of the manufacturer. A deal was made and he ordered the lot at $3.00 a dozen. The manufacturer reported later that he thought the man crazy as no one else had been interested in his bottles.

In the store, these bottles were filled with perfume and placed on display. A window was used and some advertising was run. From then on, sales took care of themselves. After the first week, every merchant in the section was out hunting for similar bottles, but the original buyer had tied up production on this type container. His department profited, as did the manufacturer, the store's prestige got a boost and customers learned to buy new perfumes in smart bottles. This buyer does not take credit for starting the perfume bottle collecting fad, but he does smile when confronted with the facts.

FLAVORS

Peppermint Flavorings

Peppermint oil is widely employed for the flavoring of candy and confectionery, chewing gum, cordials and liqueurs, and tooth pastes, powders and other pharmaceutical preparations.

MORRIS B. JACOBS, PH.D.*

PEPPERMINT flavoring is one of the flavorings which has been found readily acceptable by the consumer and for this reason is employed in a variety of products principally in the confectionery, alcoholic beverage, cosmetic, and pharmaceutical industries. The chief peppermint flavoring is peppermint oil and most of the discussion will be concerned with this product. Relatively small amounts of the fresh and dried herb are used for flavoring purposes.

DESCRIPTION

Peppermint oil is defined as the volatile oil distilled from the flowering plant, *Mentha piperita L.*, which is rectified by steam distillation. The oil yields not more than 5 per cent of esters, calculated as menthyl acetate, $CH_3COOC_{10}H_{19}$, and not less than 50 per cent of total menthol, $C_{10}H_{19}OH$, both free and esterified.

Peppermint oil is a colorless liquid having a strong penetrating odor, a pungent taste, and yields a sensation of coolness when air is drawn into the mouth. It has a specific gravity in the range of 0.896 to 0.908 at 25 deg. C.; its refractive index is in the range of 1.4600 to 1.4710 at 20 deg. C.; and its optional rotation is in the range of −18 to −32 degrees in a 100 mm. tube at 25 deg. C. One volume of the oil is soluble in 4 volumes of 70 per cent alcohol.

* Professor of Chemical Engineering, Polytechnic Institute of Brooklyn.

The range in constants is attributable to the different sources of the commercial product. There are two important horticultural sources of peppermint from which peppermint oil is obtained. These varieties are known as black and white peppermint. A less important source is the variety known as American peppermint.

BLACK PEPPERMINT

Black peppermint is also known under the names of black mint, Mitcham mint, and English peppermint. The term "Mitcham" is one which is loosely used principally by growers for different types of mint probably because these plants were first introduced from a section of England known as Mitcham. Black peppermint has deep-green, broadly lanced, slightly toothed leaves and dark-purple stems. The flowers are light purple terminal spikes. Since this is the horticultural variety that is more hardy than most other varieties and gives the highest yield of essential oil, it is the variety that is most extensively grown.

WHITE PEPPERMINT

White peppermint is the variety which is known under the names of white mint, Mitcham mint, and White Mitcham. It is a somewhat smaller plant than the black peppermint with light-green, deeply toothed, slightly pointed leaves and green stems. This variety is less hardy

than black peppermint, hence it is not grown on a commercial scale in the United States. It is grown to some extent in England.

AMERICAN PEPPERMINT

American peppermint is also known under the names of State mint and American mint. It is similar to black peppermint in appearance but has lighter green leaves and green stems. This variety of peppermint is also a hardy one but it produces demonstrably less oil than the black peppermint, consequently it is less suitable for commercial cultivation.

JAPANESE MINT

Japanese mint, *Mentha arvensis* var. *piperascens*, corn mint, field mint, is often termed Japanese peppermint. This is an erroneous designation since it does not belong to the same family as do the true peppermints. This plant produces an oil with a high content of menthol and consequently was of high importance. There are two varieties of this plant and these are known as (1) *hakka maru* and (2) *ezo hakka*, of which the former is the more important. Japanese oil of peppermint is considered to be inferior to oil of peppermint from black and white peppermint in odor and flavor quality. Regulations promulgated under the Federal Food, Drug, and Cosmetic Act require that products in which Japanese mint oil is used be labeled as "flavored with field mint" or "flavored with corn mint".

COMPOSITION

Very likely all the components of a natural oil like oil of peppermint have not been isolated. The principal components have been shown to be menthol, menthyl acetate, menthyl isovalerate, and menthone. Other components that have been isolated are acetaldehyde, isovaleric acid, isovaleraldehyde, amyl alcohol, pinene, phellandrene, cineol, limonene, cadinene, dimethyl sulfide, and an alpha-lactone, $C_{10}H_{16}O_2$. Dimethyl sulfide is considered an undesirable component and is removed by steam rectification of the oil.

OTHER MINT PLANTS

There are a number of other mint plants, none of which, with the exception of spearmint, are cultivated on a commercial scale. Most of these mints yield oils of poor quality, which, if incorporated with desired peppermint oil, will affect its quality adversely.

MINT CULTIVATION AREAS

As Sievers and Stevenson point out in United States Department of Agriculture, Farmers' Bulletin No. 1988 on *Mint Farming*, commercial peppermint cultivation was begun in the United States about 1812 at Ashfield, Mass. Shortly thereafter, about 1816, mint growing was introduced into Wayne County in New York State and this area became the principal producer in these early days of its cultivation. Its culture spread Westward, first going to northern Ohio and then to southern Michigan and northern Indiana. In more recent years, since 1909 when it was shown that the climate and soil of parts of western Oregon and Washington State were suitable for its cultivation, growing mint became firmly established in the Pacific Northwest along the Willamette River.

Statistics indicate that in 1947, in order of production of oil, the States ranked with Indiana first with 574,000 lbs., Oregon second with 550,000, Michigan third with 270,000, and Washington fourth with 209,000 lbs. While the amount of oil produced in Indiana has been increasing, its percentage increase has not been as great as that of Oregon. Furthermore the amount of oil produced per acre is far higher in the Northwest than in the Indiana-Michigan region, namely 50 lbs. per acre in Oregon, 47.5 lbs. per acre in Washington, compared with 31.0 lbs. per acre in Indiana and 20.0 lbs. per acre in Michigan. It is highly likely that the major peppermint oil producing area will become the Northwest. Small amounts of oil of peppermint are produced commercially in Ohio and in California and virtually none in New York State.

As mentioned, the peppermint plant was probably introduced into the United States from England and white peppermint is still grown there to some extent. Some is also grown in France and Italy. The oil produced from white peppermint in England is said to have a fine aroma. Attempts to grow the mint in Germany proved to be unsuccessful and commercial cultivation was abandoned. Some mint is grown in Hungary, Bohemia, Java, and relatively large quantities were grown in China.

The use of Japanese mint oil in Japan goes back to about 984. Commercial production in the modern sense began at the end of the nineteenth century and in the second decade of the twentieth century comprised about 50 per cent of oil production from mint plants. This was due to the high menthol content for which Japanese mint oil served as a principal source. Some corn mint is grown in the United States on the West Coast. There is a possibility that its cultivation may be extended. Japanese mint is also grown on a commercial basis in Brazil where it was introduced by the Japanese.

The flavoring effect of oil of peppermint is closely associated with the sensation of coolness it produces. This in turn is associated with the menthol content. But products flavored with oil of peppermint have a flavor freshness that cannot be attributed solely to the menthol content. This is clear from the fact that oil from Japanese mint which has a higher menthol content does not have as good a flavor as does the oil derived from black or white peppermint.

FLAVORING EFFECT

Another demonstration of the fact that the flavoring ability of peppermint oil is not to be considered as due solely to menthol is its use as a trace flavoring material. Such effects cannot be obtained by the use of menthol alone and many peppermint oils, themselves, cannot be used for such purposes.

STABILITY

While peppermint oil is a relatively stable material, exposure to light and air has deleterious effects. This is attributable to the oxidation and polymerization of some of the terpenes like pinene, that oil of peppermint contains.

Such changes are accompanied by an increase in the specific gravity of the oil and a decrease in solubility of the oil in 70 per cent ethyl alcohol. If the oil is drastically altered, it may become incompletely soluble even in 95

per cent alcohol and the resulting material is strongly opalescent.

Peppermint oils are sometimes redistilled. The loss in such instances is about 3 per cent in oils of relatively recent production but when very old peppermint oils are redistilled the losses may go as high as 15 per cent. With such oils, products are oils of poor flavor and bouquet.

In a subsequent article other aspects of oil of peppermint and peppermint flavor will be considered.

Flavored Notes

ONE of the major problems confronting the chemical flavorist in the preparation of an imitation butter flavor is the possibility that the flavor will bake out or be driven off by heat when used in the flavoring of bakery products, candy, and confectionery. There are several ways in which attempts have been made to overcome this difficulty. One of these is by the incorporation of a fixative in the formulation for the purpose of reducing the volatility of the more volatile components of the butter flavor and for the additional purpose of evening out the evaporation of these components. Another attempt has been the use of higher homologues of diacetyl in various butter flavor formulations. In the latter method the problem of flavor fidelity becomes a factor of importance.

* * *

This Department received a query for a supplier of racemic acid. Who can supply this material?

* * *

A recent circular from a firm of manufacturing chemists makes the statement: "There is no university degree that can prepare a student for flavor or odor work". This is not correct. While no specific degree is given for flavor and odor work, the Polytechnic Institute of Brooklyn, Department of Chemical Engineering has sufficient courses in Flavor and Food Technology to permit graduate students to do a major part of their work in flavors. Thus in the 1949–1950 school year for which registration begins in the latter part of September 1949, courses will be offered in the *Technology of Flavors*, the *Technology of Alcoholic Beverages* in which the flavoring of cordials and liqueurs and flavor aspects of alcoholic beverages is considered, and the *Technology of Dairy Products* in which the flavoring of butter, cheese, ice cream and the like is considered.

* * *

Hoglan describes in detail in U.S. patent 2,463,877, issued Mar. 8, 1949 and assigned to the International minerals and Chemical Corporation, a process for the hydrolysis of cereal glutens in which the major portion of the insoluble amino acids like leucine, isoleucine, tyrosine, phenylanlanine and methionine are removed in one step, and thus the manufacture of glutamic acid and sodium glutamate from cereal glutens is considerably shortened. *M.B.J.*

F. E. M. A. Notes

A uniform motor classification similar to the one on which railroads have completed hearings has been released; and the Transportation Committee of the Flavoring Extract Manufacturers Association has advised members of the time and places of hearings on it.

* * *

The Georgia legislature is considering a bill to impose a license tax on the sale of soda water, and soft drinks at the rates of 76 cents per gallon on syrups and one cent for each five cent bottle. The bill is now in the hands of the Ways and Means committee.

Flavor Emulsions

Walter Taylor has developed (and assigned to a commercial processor) a new patented process of preparing essential oil dispersions which holds considerable interest for the food and beverage industries:

Extension of the essential oil is accomplished by dissolving it in water-soluble hydroxy polyenthylene ethers of Aliphatic monocarboxylic fatty acid esters of polyhydric alcohols such as glycerol, manitol, sorbitol, etc. Clear stable solutions are formed of the essential oil with water and the mixture may be further diluted with water to form a clear, stable aqueous dispersion of the oil and hydroxy polyoxyethylene ether. The fatty acid component of the extending agent is preferably of 12-16 carbons.

In an example of the new process, Taylor prepares an orange oil emulsion by shaking one part of the oil orange with nine parts water, and adding to it with agitation, six parts mammitan monolawiate hydroxpolyethylene ether (20 oxyethylene units/mol.). *Food Materials & Equipment.*

Odor Messengers

How efficient the human nose is as an odor detector may be judged from the fact that it is sensitive to as little as a billionth of a milligram of an aromatic vapor. The tongue needs a million times as much in order to be able to taste it—which is another reason why odor is a more important factor than taste in food and beverage flavoring.

Big Business

The day of the production of food flavors on a laboratory scale is rapidly drawing to a close. Flavor is becoming big business. Into the meat flavor field two companies are producing sodium monoglutamate from waste proteins. International Minerals and Chemicals Corp., and A. E. Stanley Manufacturing Co. They estimate the ultimate cost of their development to be in the neighborhood of one million dollars. This is definitely big business.

SOAPS

Census of Soap and Allied Products

The Bureau of the Census has issued its final report covering Soap, Glycerin and Allied Products for 1947. Detailed tables are reproduced herewith.

TABLE 1.—GENERAL STATISTICS FOR THE UNITED STATES: 1947 AND EARLIER CENSUS YEARS

[Money figures in thousands of dollars. For explanation of column captions see GENERAL EXPLANATIONS]

INDUSTRY AND CENSUS YEAR	Number of establishments	All employees		Production and related workers		Value added by manufacture [1]	Cost of materials, fuel, electricity, and contract work	Value of products shipped [2]
		Number (average for the year)	Salaries and wages, total	Number (average for the year)	Wages, total			
Soap and glycerin:								
1947	249	37,660	$93,638	19,394	$57,619	$450,721	$640,424	$1,085,789
1939	264	20,191	33,091	13,624	18,801	141,632	161,002	302,634
1937	242	17,628	26,779	14,008	19,075	116,122	185,170	301,292
1935	238	17,053	22,390	13,911	15,339	99,659	139,493	239,152
1933	235	17,828	20,451	14,304	14,140	106,621	93,507	200,128
1931	248	n.a.	n.a.	14,163	17,740	135,890	121,829	257,719
1929	282	19,051	30,498	14,363	18,995	129,839	180,353	310,192
1927	256	17,591	29,482	13,432	19,716	114,816	172,244	287,060
1925	272	20,009	28,833	15,406	18,526	93,399	144,874	278,273
1923	270	24,238	36,487	17,002	20,776	102,857	173,546	276,403
1921	293	22,919	32,566	16,558	18,865	89,839	150,356	240,195
1919	348	28,736	35,400	20,436	21,228	78,221	238,519	316,740
1914	371	19,587	14,780	14,172	8,088	39,075	88,867	127,942
1909	420	18,064	11,732	12,999	6,227	39,179	72,179	111,358
1904 [3]	436	14,102	8,265	11,044	4,763	24,649	43,626	68,275
Cleaning and polishing preparations:								
1947	1,038	15,352	48,209	9,090	20,984	135,120	126,854	261,565
1939	637	9,978	15,985	5,128	5,667	52,097	37,670	89,767
1937 [4]	510	7,057	10,716	4,877	5,422	45,422	31,632	77,054
1935	562	6,612	10,052	4,322	4,500	31,648	25,691	50,339
1933	481	6,060	6,960	4,380	4,226	38,442	21,662	60,104
1931	544	n.a.	n.a.	3,950	4,635	44,410	23,920	68,350
1929	599	6,720	11,691	4,330	5,316	47,717	27,744	75,461
1927	517	6,281	10,491	4,119	5,169	39,378	24,405	63,783
1925	470	6,342	10,371	4,030	4,824	36,634	22,441	59,075
1923	473	7,189	11,011	4,541	4,916	37,412	23,853	61,265
1921	452	5,494	7,980	3,353	3,407	21,310	20,321	41,631
1919	719	7,494	10,325	4,410	4,008	25,022	26,965	51,987
1914	593	4,964	4,152	3,005	1,496	10,909	9,024	19,033
1909	501	3,973	2,955	2,417	1,146	7,717	6,962	14,679
1904	294	2,505	1,511	1,782	738	4,298	4,383	8,651
1899	275	2,444	1,346	1,758	634	3,546	3,152	6,698
Sulfonated oils and assistants:								
1947	105	1,950	7,906	1,245	3,439	20,238	31,268	51,506
1939 [5]	85	n.a.	n.a.	757	935	7,259	10,504	17,763

n.a.—Not available.

[1] Value of products less cost of materials, supplies, fuel, electricity and, contract work. See GENERAL EXPLANATIONS—Value added by manufacture. For "Soap and glycerin" and "Cleaning and polishing preparations," see GENERAL EXPLANATIONS—Method of calculating value added by manufacture in 1947 for selected industries.

[2] For 1947 and 1929, value of products shipped; for all other years, value of products made. See GENERAL EXPLANATIONS—Value of products shipped.

[3] In 1899, "Soap and glycerin" was combined with "Candles" in a single industry. Separate figures are, therefore, not available.

[4] Figures for 1899–1937 comparable with those for 1939 and 1947 were obtained by combining the data for "Cleaning and polishing preparations" and the discontinued classification "Blacking, stains, and dressings."

[5] "Sulfonated oils and assistants" was classified prior to 1947 in the discontinued industry, "Tanning materials, natural dyestuffs, mordants, assistants, and sizes." The dyestuffs 1939 figures were obtained by retabulation of the 1939 returns for the latter industry. No comparable data are available for prior years.

TABLE 2.—GENERAL STATISTICS BY DIVISIONS AND STATES: 1947

[Money figures and man-hours in thousands. For explanation of column captions see GENERAL EXPLANATIONS]

INDUSTRY, DIVISION, AND STATE	Number of establishments	All employees		Production and related workers			Value added by manufacture	Cost of materials, fuel, electricity, and contract work	Value of products shipped	Expenditures for new plant and equipment
		Number (average for the year)	Salaries and wages, total	Number (average for the year)	Man-hours, total	Wages, total				
Soap and glycerin, total [1]	249	27,660	$93,638	19,394	41,236	$57,619	$450,721	$640,424	$1,085,789	$24,080
New England	18	2,280	8,229	1,771	3,636	5,311	34,316	59,764	95,389	701
Massachusetts	12	1,881	6,936	1,473	2,990	4,550	31,724	55,437	88,538	498
Middle Atlantic	80	9,114	29,860	5,919	12,387	16,304	111,049	168,217	278,479	4,565
New York	39	2,709	8,895	2,003	4,115	5,839	46,570	56,572	102,867	1,304
New Jersey	18	5,012	17,057	2,745	5,869	7,927	49,146	77,053	125,681	2,736
Pennsylvania	23	1,393	3,908	1,171	2,403	2,538	15,333	34,592	49,931	525
North Central	86	12,402	42,126	8,962	19,207	27,339	220,581	298,537	516,645	13,216
Ohio	21	3,047	10,326	2,214	4,784	6,919	58,671	86,679	145,373	3,964
Illinois	19	3,263	10,990	2,424	4,918	6,836	37,752	67,770	105,077	3,178
Michigan	7	169	599	117	235	349	1,437	1,629	3,066	123
Minnesota	8	113	301	41	76	86	527	873	1,400	11
Missouri	8	564	2,057	348	710	1,014	8,669	12,979	21,576	931
South	30	2,011	6,489	1,519	3,293	4,301	51,122	70,328	119,734	4,114
North Carolina	3	30	62	24	46	43	60	115	175	25
West	35	1,853	6,914	1,223	2,713	4,364	33,653	43,578	75,542	1,484
California	27	1,708	6,427	1,137	2,536	4,140	32,660	40,931	71,938	1,417
Sulfonated oils and assistants, total [1]	105	1,950	$7,906	1,245	2,696	$3,439	$20,238	$31,268	$51,506	$1,390
New England	26	335	1,147	204	436	496	3,402	4,640	8,042	190
Massachusetts	14	182	625	117	254	291	2,086	2,685	4,771	111
Rhode Island	12	153	522	87	182	205	1,316	1,955	3,271	79
Middle Atlantic	53	1,368	5,738	891	1,933	2,578	14,576	22,962	37,538	1,125
New York	14	134	494	91	195	249	2,057	2,575	4,632	47
New Jersey	20	867	3,242	593	1,282	1,770	8,558	14,871	23,429	743
Pennsylvania	19	367	2,002	207	456	559	3,961	5,516	9,477	335
Other divisions	26	247	1,021	150	327	365	2,260	3,666	5,926	75

[1] For each producing State not shown separately in the table (see GENERAL EXPLANATIONS "Disclosure of Data for Individual Companies"), there are shown below the number of establishments and, in parentheses, the number of employees for States represented by three or more companies, when possible.

Soap and glycerin: *New England*, Rhode Island, 3 (34); Connecticut, 3 (365); *North Central*, Indiana, 5 (3,350); Wisconsin, 10 (85); Iowa, 5 (175); Nebraska, 1; Kansas, 2; *South*, Maryland, 5 (994); Georgia, 4 (266); Kentucky, 1; Tennessee, 4 (76); Alabama, 1; Louisiana, 3; Texas, 9 (588); *West*, Arizona, 1; Utah, 1; Washington, 4 (70); Oregon, 2.

Cleaning and polishing preparations: *New England*, Maine, 1; New Hampshire, 3; Vermont, 3 (126); Rhode Island, 5 (102); Connecticut, 19 (134); *Other divisions*, Indiana, 19 (452); Illinois, 101 (1,783); Wisconsin, 41 (951); Nebraska, 7 (75); Kansas, 5 (11); Delaware, 1; Maryland, 19 (370); Virginia, 4 (11); West Virginia, 2; North Carolina, 8 (45); South Carolina, 4 (11); Florida, 4 (11); Kentucky, 5 (44); Alabama, 6 (47); Mississippi, 2; Louisiana, 7 (31); Oklahoma, 3 (24); Texas, 24 (192); Idaho, 1; Colorado, 9 (69); Utah, 3 (7); Washington, 6 (20); Oregon, 5 (24); California, 96 (1,147).

Sulfonated oils and assistants: *Other divisions*, Indiana, 1; Illinois, 3 (22); Virginia, 1; North Carolina, 11 (98); South Carolina, 4 (26); Georgia, 2; Tennessee, 3 (37); California, 1.

TABLE 5.—VALUE OF PRODUCTS SHIPPED, BY BROAD CLASSES OF PRODUCTS, FOR THE UNITED STATES: 1947

[The first column shows the total value of shipments of the specified industry, divided among: (A) products classified in (primary to) the industry, (B) products classified in other industries (secondary to the specified industry), and (C) miscellaneous receipts. The second column shows the value of shipments of the primary products of the specified industry reported by establishments in other industries. The third column shows the total value of shipments of the primary products of the specified industry by all reporting manufacturers]

[Money figures in thousands of dollars]

SOAP AND GLYCERIN INDUSTRY	Shipped by—		
	Soap and glycerin industry	Other industries	All industries
Total shipments by the industry	$1,085,789		$960,471
A. Soap and glycerin	[2] 880,786	$79,685	806,030
Soaps, except specialty soaps	752,159	[3] 53,871	32,452
Specialty soaps	17,782	[3] 14,670	33,413
Soap products, not specified by kind	29,951	[3] 3,462	88,276
Glycerin	80,894	7,682	
B. Secondary products	197,225		
Cleaning and polishing preparations	108,462		
Fatty acids	7,326		
Chemical specialties	3,556		
Other secondary products	77,336		
Secondary products, not specified by kind	545		
C. Miscellaneous receipts	7,778		
Nonmanufacturing activities	7,597		
Other	181		

SULFONATED OILS AND ASSISTANTS INDUSTRY	Shipped by—		
	Sulfonated oils and assistants industry	Other industries	All industries
Total shipments by the industry	$51,506		
A. Sulfonated oils and assistants	39,589	$12,690	$52,279
B. Secondary products	11,914		
Chemical specialties	3,196		
Soaps, except specialty soaps	708		
Secondary products, not specified by kind	8,010		
C. Miscellaneous receipts	3		

CLEANING AND POLISHING PREPARATIONS INDUSTRY	Shipped by—		
	Cleaning and polishing preparations industry	Other industries	All industries
Total shipments by the industry	$[4]261,565		
A. Cleaning and polishing preparations	182,512	$168,813	$351,325
Synthetic organic detergents	18,242	116,526	134,768
Alkaline detergents	27,413	9,075	36,488
Specialty detergents	23,173	21,198	44,371
Polishing preparations and related products	91,557	18,590	110,147
Other cleaning and polishing preparations, not specified by kind	22,127	3,424	25,551
B. Secondary products	38,017		
Chemical specialties	14,278		
Other household furnishings, n. e. c.	4,245		
Lubricating oils	3,354		
Household insecticides and repellents	3,071		
Other cosmetic and toilet preparations, n. e. c.	1,913		
Other secondary products	[5] 11,156		
C. Miscellaneous receipts	5,581		
Nonmanufacturing activities	4,460		
Other	1,121		

[1] Includes soap products made from purchased soap classified as follows: Soaps, except specialty soap, $28,351,000; and specialty soaps, $7,104,000.
[2] By soap producers only.
[3] Made from purchased soap.
[4] Principally products containing synthetic organic and alkaline detergents.
[5] Principally dentifrices, hair preparations, cosmetic and toilet preparations, vegetable and sulfonated oils.
[6] Principally organic and inorganic chemicals, sulfonated oils and proprietary pharmaceutical preparations.

TABLE 6.—QUANTITY AND VALUE OF PRODUCTS, TOTALS FOR THE UNITED STATES: 1947 AND 1939

[All figures in thousands]

PRODUCT	Unit of measure	1947			1939	
		Total shipments and interplant transfers		Production	Produced for sale	
		Quantity	Value f.o.b. plant	Quantity	Quantity	Value
Soap and glycerin, total			**$960,471**			**$292,187**
Soap, except specialty soap			**806,080**			
Bars:						
Toilet	Pounds	555,451	187,824	565,617	409,116	66,209
Laundry and household:						
White	do	407,694	87,418	406,561	660,663	29,883
Yellow	do	350,281	43,524	358,329	578,785	27,670
Other, (including industrial)	do	27,209	4,569	28,105		
Chips and flakes:						
Packaged	do	230,720	67,224	227,961	284,266	24,988
Bulk	do	195,934	39,576	195,106	134,313	9,484
Granulated, powdered and sprayed:						
Packaged	do	1,391,116	279,994	1,412,458	892,655	75,432
Bulk	do	131,679	21,449	133,989		
Washing powder:						
Packaged	do	80,478	5,909	84,839	131,756	5,304
Bulk	do	103,859	6,258	106,318	110,366	3,179
Cleansers, containing abrasives:						
Packaged	do	265,723	22,422	267,087	n.a.	n.a.
Bulk	do	77,109	6,253	77,185		
Liquid, excluding shampoos (potash and other):						
Packaged	Gallons	2,221	2,180	2,247	42,782	3,629
Bulk	do	14,247	10,447	14,454		
Paste and jelly (potash and other):						
Packaged	Pounds	12,043	1,680	12,931		
Bulk	do	31,825	4,557	33,015		
Other soaps (including soap stock)			14,746			[1] 18,475
Specialty soaps			**32,452**			
Mechanics hand soaps and pastes	Pounds	50,445	6,384		17,914	935
Medical and medicated	do	5,630	3,144		n.a.	n.a.
Other specialty soaps			8,997			
Shaving cream lather:						
Tube	do		8,340	9,049	7,941	6,157
Jar	do		182	265		
Shaving soap	do		5,405	6,348	5,605	2,395
Soap products not specified by kind			33,413			
Glycerin (100 percent basis)			**86,576**			**18,417**
Crude	Pounds	40,997	16,222	206,186	[2] 29,266	2,323
High gravity, dynamite, and yellow distilled	do	81,568	34,211	86,943	64,294	6,595
Chemically pure	do	92,220	38,143	103,900	90,382	9,499
Cleaning and polishing preparations, total			**$351,325**			
Synthetic organic detergents			**134,768**			
Not in combination with soap or other detergents:						
Liquid:						
Packaged	Gallons	870	1,017	853		
Bulk	do	3,703	2,864	3,783		
Solid:						
Packaged	Pounds	242,759	87,543	243,734		
Bulk	do	9,196	1,634	14,849		
In combination with soap:						
Liquid:						
Packaged	Gallons	397	770	397		
Bulk	do	1,021	1,285	1,040		
Solid, packaged and bulk	Pounds	17,296	1,139	17,304		
In combination with alkaline detergents:						
Liquid:						
Packaged	Gallons	84	106	82		
Bulk	do	1,122	1,199	1,138		
Solid:						
Packaged	Pounds	22,169	3,806	23,548		
Bulk	do	58,753	6,026	58,992		
Bulk surface active agents, except sulfonated oils and fats (synthetic organic chemicals)			27,379			
Alkaline detergents			**36,488**			
Liquid:						
Packaged			403			
Bulk			403			
Solid:						
Packaged	Pounds	94,789	9,923	96,030		
Bulk	do	295,089	25,759	297,000		
Specialty detergents			**$14,371**			
Glass window cleaning liquids	Pounds	5,243	3,493			
Oil and dust absorbents, including sweeping compounds	do	75,351	1,742			
Toilet bowl cleaners	do	47,745	6,821			
Wall paper, window shade and paint cleaner	do	110,432	17,072			
Drain pipe solvents	do	16,900	3,017	17,684		
Dry cleaning spotting preparations	Gallons	6,452	6,958	6,755	2,345	$2,725
Paint and varnish removers, including brush cleaners:						
Powder	Pounds	2,195	616	2,297	n.a.	1,825
Liquid	Gallons	3,714	4,652	3,705		
Sulfonated oils and assistants, total			[3] **52,279**			**22,101**
Sulfonated oils and fats	Pounds	84,604	16,991		67,565	5,534
Softeners, soluble oils and greases	do	82,035	16,007		83,610	7,500
Other assistants [4]			17,459			9,067
Sulfonated oils and assistants, not specified by kind			1,822			n.a.

n.a.—Not available.

[1] For 1939, includes soap stock made for sale as such; bar cleansers containing soap; textile soap; potash soap, other than textile and hand; and soap not reported according to 1939 classification.

[2] Crude, 80 percent basis.

[3] Data for 1947 include figures for egg yolk, wetting agents, waterproofing emulsions, mordants other than tannic acid and an undetermined quantity of sizes, soaps and synthetic detergents. The 1939 data include figures for soaps and other detergents, mordants other than tannic acid and excludes figures for egg yolk and sizes.

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WASHINGTON PANORAMA

by ARNOLD KRUCKMAN

LEMONGRASS is probably the most widely discussed subject of interest to the industry in Washington today. They're talking about it in the Department of Congress, the Department of Agriculture and the Department of State. Its utilization to make vitamin A apparently will upset several apple carts. It is, of course, no secret that one organization already is producing vitamin A by way of citral and that several other groups have devised methods to accomplish the same purpose.

It is no secret that some of the largest industrial corporations of the United States with cheap land, cheap labor and with areas in tropical zones are about ready to produce the vitamin A from lemongrass in substantial commercial quantities.

NEW AREAS TO BE DEVELOPED

However, it is fascinating to contemplate the prospect of what is ahead. We are told here that lemongrass unquestionably will be grown in the vast areas of Africa as well as in Asia, and that there will be more production in South America as well as in Australia. It is especially interesting to note they are thinking about its production in the Caribbean, especially in Puerto Rico. Puerto Rico, unhappily for its people, has the lush tropical background, cheap land and cheap labor which naturally is a concomitant of the fact that Puerto Rico is the most densely populated area in the world. It usually startles people to learn that it is even more densely populated than Belgium, which hitherto has had the reputation of pressing more people to the square mile than any other place on the face of the globe.

There is a relation between this development in the prospects of lemongrass and the Presidential plan to give first aid to the underdeveloped areas of the globe. It is clear that the products such as lemongrass will be one of the earliest commodities to be placed on the program for commercial development. It is not generally known that this program to make the underdeveloped areas of the world bloom has been a British project for more than two years. It originally came to the attention of this correspondent in a white paper that was sent to him by British relatives. This paper suggested that the hope of Britain and other European countries with colonial possessions rested upon the development of the great underdeveloped areas in Africa, Australia and in South America as well as in other places. It was suggested the development of these areas would provide a place to which Britain could send its surplus population and that the investment of human energy and money was almost the sole hope that Britain and other European countries might again recover the status of wealth that had come to them in the last hundred years with the development of steam ships and the colonial empire.

Some one apparently did a fine job of selling the idea to Truman. There is no question that this is another instance of the adroit genius of British diplomacy. The idea first appeared in Truman's public utterances as the main subject of his inaugural address. Next he emphasized it in the Little Rock address in mid-June. It is, of course, simply WPA extended to global dimensions and ECA made world-wide. The program as we understand it here, is that we shall supply at least 50 per cent of the finances, and in all likelihood, 75 per cent. The rest of the financing is to be done by the participating countries, in this case Britain, Belgium, France, Holland and to some extent Italy as well as other countries.

The colonial areas to be developed are chiefly held by Britain, France, Belgium and Holland with a tiny bit of the lush soil under the flag of Italy. We, of course, have Puerto Rico and presumably we have some influence in South America but the thought here is that when the thing once gets into swing our British friends will probably get the major benefits of what may happen in Puerto Rico as well as in South America.

The program at the present time is one of those things which is still undetailed. Do not, however, fool yourself into thinking it will not be driven to a conclusion. There is a tremendous drive behind it. This drive comes from many influences in this country as well as elsewhere. The President and the crowd who believes as he does expect that the election in 1950 will give the administration at least ten percent more following in the House and in the Senate.

The immediate prospect from the White House standpoint is that we will have more deficit financing and more printed money, another gentle shot in the arm of modest inflation. This is presumed to be the psychological, clinical treatment for the current conditions. The program is expected to operate quickly. The National

economy is expected to lower prices, lower profits and lower everything else that will make the business function prosperously.

As its daily good deed, the administration will forego the demand to increase taxation. This, of course, means there will be no reduction in excise taxes. The excises on cosmetics, perfumes and other products of the industry are expected to remain as they are. If the big corporations don't want to play, it is expected they will be especially soaked with additional taxes.

As an indication of what is in mind, it will be interesting to contemplate the economic expansion act of 1949 introduced by Senator Murray, D-Mont., on July 15th. He was joined significantly by seventeen other Senators in the introduction of the act. It calls for four billion dollars in appropriations and eleven billion dollars in loans, to be used by the government to help private industry or to start long range public works to arrest any unemployment that may be current.

It is an implementation of Truman's recent mid-year economic report to provide the incentive of guaranteed loans and a mortization of debts. It would provide more benefits for veterans, make price, wage and profit studies and expand unemployment compensation standards. A bi-partisan commission will be created to investigate Federal, State and local tax policies. RFC would get another billion dollars to spend on public works by Federal, State and local agencies. It also would activate the so-called point 4 program which is the program to develop underdeveloped areas of the world. RFC would be authorized to insure bank loans to business for the purpose and authorize the United States to purchase securities of the International Bank. It would also increase the lending authority of the Export-Import Bank in guaranteed private American investment in the underdeveloped areas of the world.

Two billion dollars would be provided as an unemployment reserve fund to be used to provide work at prevailing wages in localities hit hard by unemployment. Funds also are established to retrain unemployed workers and to move them to other areas where work might be made available. The bill, an amendment to the full employment act of 1946, is numbered S281. It has been referred to the committee on labor and public welfare. Watch it carefully.

HAIR PREPARATION SALES HIGH

A very interesting report recently was issued from the Consumers Merchandise Branch of the Department of Commerce, Bureau of Foreign Commerce. It was prepared by Miss Emma D. Schutrumpf and Sidney Picker. It surveys what happened to hair preparations in the past year in the trade of the American Republics. The Commerce Department people revealed that the sales of hair preparations stepped up from 2,467 dollars in 1938 to 424,240 dollars in 1948, an increase of 378 per cent.

It is pointed out the significance of these figures are shown in relation to the total United States hair preparation sales to all foreign countries, which rose from 13.6 per cent in 1947 to 17.7 per cent in 1948.

Bear in mind that Latin American men, as well as other men of Latin derivation, use much cologne, toilet water and perfume. One of the most difficult experiences they have when they come to the United States is to become accustomed to the abandonment of the habit. They wonder why our men are so reluctant to use odoriferous fragrances. It is pointed out that Argentina has the largest domestic consumption because it has the largest middle class population. Its men use much brilliantine and many pomades. United States and Argentina are the principal sources of important hair preparations.

In Brazil there is an appreciable market for hair preparations amounting to millions of packages used. Most of them are Brazilian, although there is some market for United States brands. Chile uses almost a million dollars worth of hair preparations each year, about 75 per cent foreign brand products are manufactured in Chile. They are making more and more of their own products. There are not many hair preparations used in Costa Rica. Colombia makes its hair preparations from imported raw materials. Three United States brands represent 75 per cent of production. Cuba has many domestic brands made in Cuba, one brand made by an affiliate of a well known United States manufacturer. Ecuador markedly prefers hair preparations made in the United States. El Salvador makes its own hair preparations. Guatemala makes brilliantines and lotions but makes them in limited quantities, as they prefer the products of the United States. French products are popular and will probably top sales of products of the United States if they are properly marketed. Haiti depends upon imported products for its supply. Honduras gets its hair preparations from a drug firm in its principal city. Mexico has a large production of hair preparations constantly expanding. It is the Mexican policy, recently made firm by a decree, to keep out everything that can be made within Mexico, and for this reason, it is anticipated that the products of the United States, Spain and France will rapidly diminish. Nicaragua makes its own brilliantines and pomades in small drug stores and in the homes.

Panama has four small factories which import the materials from the United States. Paraguay imports practically all its hair preparations. Peru has a large domestic industry. Uruguay also has a considerable domestic industry. Venezuela has twenty manufacturers who produce from a million to two million dollars worth of goods.

FTC APPOINTMENT STILL UNCONFIRMED

John Carson, the choice of the President from the cooperatives to become a federal trade commissioner still is unconfirmed by the Senate. It is not likely that Mr. Carson will be confirmed before the Senate adjourns on August 10th. The extreme liberalism attributed to Carson has been much emphasized in the hearings held on the subject of his appointment. As suggested in these letters, heretofore there is every likelihood that he will be appointed by the President ad interim when Congress adjourns. Thereafter when Congress returns to Washington it is expected Mr. Carson's appointment will be made subject to some sort of deal between the White House and the recalcitrants in the Congress. There is little doubt that Carson eventually will occupy the job. There is also little doubt that the majority of the people who do business with the Federal Trade Commission do not want him in. Incidentally, the Fair Trade Practice rule for the toiletries industry is still suspended in the proceedings of the FTC.

NEW PRODUCTS AND PROCESSES

Adhesive With Repellent

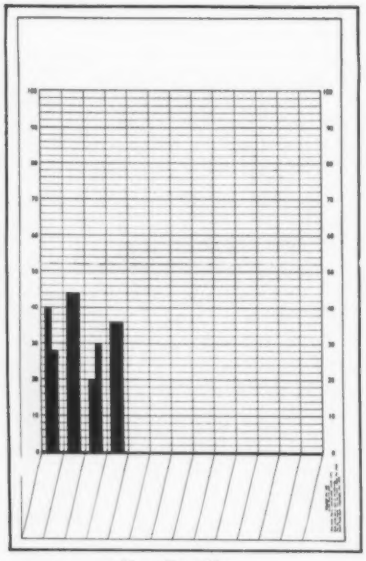
Packaging adhesives are now available containing insect repellents. In collaboration with U.S. Industrial Chemicals, Inc., New York, N.Y., National Adhesives, Division of National Starch Products, Inc., now offers a range of scientifically formulated and manufactured adhesives containing piperonyl butoxide, an insect repellent. According to the manufacturer, the addition of the repellent in no way diminishes the effectiveness or working properties of the adhesive.

Sodium Chloroacetate

The Dow Co., Midland, Mich., has announced the immediate availability of sodium chloroacetate, technical, a free-flowing, stable powder packed in 100- and 300-pound fibre drums.

Bar-Charts

Motivation Charts, Inc., has placed Zippo Bar-Charts on the



New Bar-Chart

market. Drawing instruments and ink are not required in preparing these charts. They are made by starting a strip with a knife or other sharp-edged instrument. The strip is then torn to the desired place and pulled off against a straight edge.

The Bar-Charts are supplied with or without scale numbers, and in a variety of sizes and rulings; also with single bars spaced at half-inch intervals, or double bars spaced at three-quarter inch intervals. Bars are in contrasting colors from the face of the chart.

New Packaging Material

The Richelieu Corp. has presented Irilite. The material is a composition which incorporates a derivative of colorful sea shells in vinyl compounds, acrylic, fibre glass, melamine fabrics or paper. The shells are treated to produce iridescent flake particles of a pearl-like quality, and these are incorporated in the various materials. Unusual packaging effects may be obtained.

Sodium Amide

The Farchan Research Laboratories, Cleveland, Ohio, has announced the availability of sodium amide as a free-flowing powder. In this form it is ready for immediate use. Bulletin F-1 is available on the product.

Anion Exchanger

Full plant-scale production of Amberlite IRA-400, a new, strongly basic anion exchanger, which, according to the manufacturer, markedly increases the scope of ion exchange technology, is announced by the Resinous Products Division of Rohm & Haas Co.

This is said to be the first resin absorbent which can be utilized to split neutral salts completely. It is stated that the resin can be mixed intimately with a strong cation exchanger to prepare an absorbent bed that will completely deionize solutions in one column and in one step.

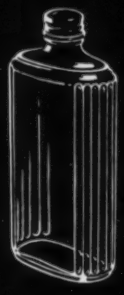
New Catalogs

The W. C. Hardesty Co. has available a set of data sheets which set forth in easy-to-read chart form the specifications and respective solubility in oils, solvents and waxes of various molecular-weight polyethylene glycol mono and di stearates, laurates and oleates, and various glycerol and glycol esters of fatty acids. This information and samples are obtainable at no charge.

Veegum, an emulsifier, thickener, and suspending agent, is the subject of a new illustrated, 42-page booklet published by the Specialties Department of R. T. Vanderbilt Co., New York, N.Y. A complex colloidal magnesium aliminum silicate, Veegum has film forming and unusual viscosity characteristics. The product is inorganic, tasteless, and nontoxic. The booklet is divided into two sections. The first describes the product and its properties. The second is a work book of formulas designed for those who are directly concerned with the application of the product. Copies are available upon writing.

Fritzsche Brothers, Inc., New York, N.Y., has issued a new price list on absolutes, fixatives, aromatic chemicals, colors, concretes, tinctures, etc. Copies are freely available.

R. S. Aries & Associates has issued a leaflet entitled Chemical Process Engineering. Copies are freely available.



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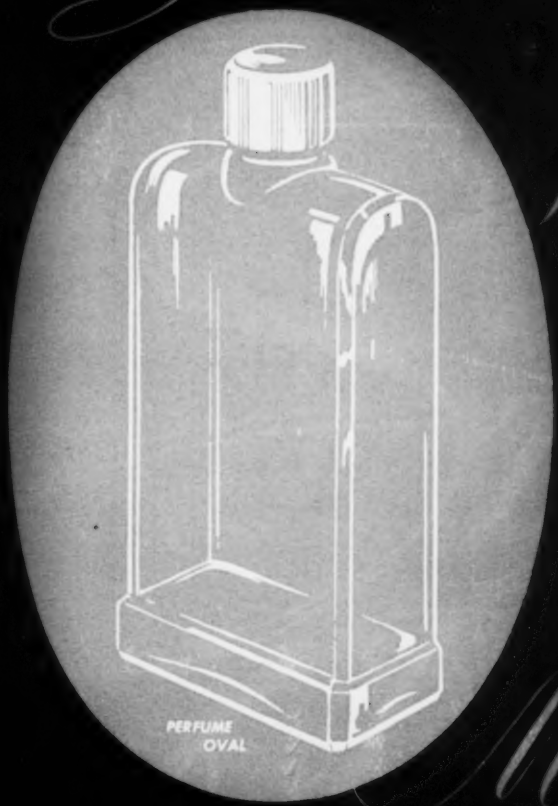

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Hints for Improving Production

Causes of cloudy lotions . . . First plant maintenance show and exposition in Cleveland Ohio January 16-17, 1950 . . . New and Improved Equipment for plant and laboratory . . . News notes

WHEN lotions become cloudy, very often it is due to failure to remove materials which will flocculate or crystallize on standing. It may also be caused by insufficient mixing or dispersion. If it comes when the liquids have been subjected to lower temperatures it may be due to the formation or "freezing" of minute wax crystals or strings of gummy slime. Refrigerating the liquids before filtering will invariably remedy this condition. For small lots dry ice will be useful for this purpose. Sometimes cloudiness comes from crystallization due to an excess of a constituent chemical and it is also possible that constituent chemicals may react with each other causing a precipitate. In such cases a modification of the formula is advisable. In other cases proper filtration is the remedy.

Normally a clear brilliant liquid may be obtained by filtration through a mechanical filter with the proper filter medium. The nature and amount of the solid and semi solid materials to be removed, the chemical composition and the viscosity of the lotion however determine the selection of the proper filter medium of which asbestos often with an appropriate filter aid is the most generally used. From time to time if there is a tendency to clog it is advisable to flush the filter medium with an appropriate solvent to remove any gummy material which may cause the clogging. Most standard mechanical filters are so designed that this is readily done.

When a brilliant liquid does not result, clarification is incomplete and possibly beyond the power of any filter to remedy. In such cases heating and clarification with albumin or gelatin may be the answer. But when such a condition arises it is advisable to seek the advice of the equipment manufacturer. Most are familiar with and have had long experience in solving similar problems for their customers and most have testing laboratories. Invariably they are prepared to suggest the proper filter aids for any given operation and if these fail, to suggest a means for securing sparkling liquids by advanced treatment of the liquid.

Plant Maintenance Show

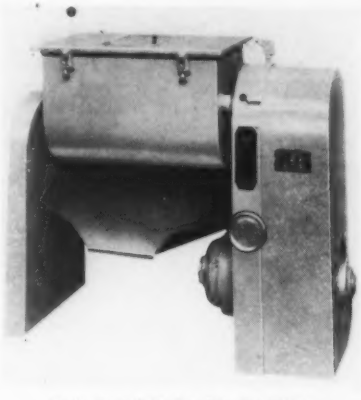
The first plant maintenance show and exposition devoted exclusively to cost reduction through improved installation, operation and maintenance of equipment and services in factories, warehouses and other plants will be held in the auditorium, Cleveland, Ohio, January 16 and 17, 1950 under the direction of Clapp & Poliak Inc. Concurrently with the show a four day conference on plant maintenance methods will be held. The show and conference will emphasize those aspects of plant operation whose share in total costs is a considerable factor. There will be no charge for admission to the show or conference.

Prepacking in Corrugated Boxes

In view of the interest of manufacturers and retailers in factory packing merchandise in selling units the Hinde & Dauch Paper Co. has issued a well prepared booklet of 30 pages on "How to Prepack in Corrugated Boxes" which will be sent on request. The Prepack idea is to sell goods from a floor sample, filling orders from clean, fresh stock that is factory packed in selling units. The booklet analyzes the problems in connection with prepacking, discusses costs and suggests practical methods for using prepacking to best advantage.

Stokes Mixers Redesigned

For greater operating efficiency the F. J. Stokes Co. has completely redesigned its line of Stokes series 21 mixers. Available in 50, 100, 200 and 300 pound capacity, the new mixers, the company states, incorporate these improvements: Dust tight lids; positive safety devices on the lid with motor shutting off when the lid is raised; variable speed control with agitator speeds from 21-42 rpm; all welded construction; completely enclosed drive to protect working parts from dirt and dust; adjustable discharge chute which can be tilted to any height; simplified dumping mechanism with safety catch for locking mixer in position; push button start and stop control with jog but-

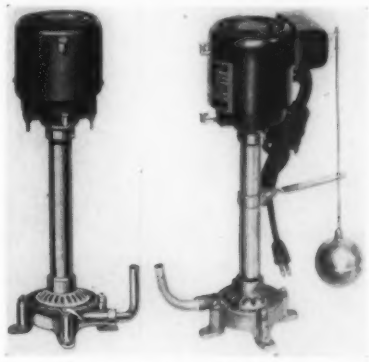


Redesigned Stokes No. 21 Mixer

ton for jogging agitator around when dumping; perforated trough available to admit solutions of binds, flavorings etc. Complete specifications will be sent on request.

Miniature Electric Pump

A new miniature electric pump for moving liquids of oily, acid or



New Small Immersion Pumps

alkali content has been developed by the Samuel S. Gelber Co. It weighs 9¾ lbs. and is 14⅛ in. high and is powered by a $\frac{1}{30}$ hp. motor. Naturally it is easily portable. According to the manufacturer's description there is only one moving assembly with nothing to wear out. Double inlets at the top and bottom of the pump are provided to prevent clogging. The motor is self-cooling and it has a stainless steel, ground and polished one piece shaft. The open impellor design, it is pointed out, will handle a reasonable amount of solid matter easily. Many uses for the pumps in the laboratory and elsewhere readily suggest themselves.

New Vertical Speed Reducer

Because little headroom is needed the new speed reducer developed by the American Pulley Co. is well adapted, the company states, to such operations as agitation, homogenization, paddle mixing and beating. It will provide, it is added, any driven speed below 154 rpm from standard stock parts and for the first time offers a vertical speed reduction drive at a cost only slightly higher than that of a horizontal speed reduction drive. It is built to mount right on the shaft of the driven machine as easily as a pulley. Quick speed changes are possible, it is pointed out, because pulleys or sheaves of different diameters may easily be substituted in the primary belt drive or standard adjustable diameter sheaves may be used. Further, it is added, the interchangeable bushings permit the new reducer to be adapted to shafts of various sizes.

Preventing Conveyor Line Jams

The jamming of cartons or cases on conveyor lines, which is often a serious production problem, is indicated by the Photoswitch delayed action photoelectric control type 20DA4 Photoswitch which, according to Photoswitch Inc., introduces conveyor stop motion or other correction. Control and light sources are placed on opposite sides of the conveyor so that when a case or carton passes along the conveyor it will interrupt the light beam. Relay action in the photoelectric control occurs when the light beam has been interrupted for a predetermined time interval, representing a longer period than would normally be required for a case or carton to pass by. This excessive light beam interruption can be caused only by the jamming of several adjacent cases or cartons. Under the circumstances it is generally desirable to temporarily prevent additional cases or cartons from entering the main conveyor line by stop motion control of the feeder conveyors. The incorporation of the delayed action feature into the photoelectric control is for the purpose of reducing relay action to only those instances where a jam occurs. The delayed action interval is adjustable. The entire unit is designed for plug-in construction of all electrical connections in order to provide simplicity and speed for replacement. A special bulletin issued by the company describes the equipment.

Price Reductions

The Karl Kiefer Machine Co. announces that prices have been materially reduced on the following hand-operated machines: Duo-blo bottle cleaner; Cinati Junior filling machine; Monoscale filling machine; Mono-piston filling machine; and hand vacuum filling equipment. The foregoing machines are illustrated and described in a leaflet which may be had for the asking.

Packing Materials Listed

Materials of construction and packing materials for use with over 300 industrial liquids and gases are listed in a revised catalog section No. 97 which will be sent on request by the Fischer & Porter Co. The tabulation of corrosion resistant materials is based on previously published data and is believed by them to be the most complete and up to date bulletin available for ready reference.

Gift Merchandising Packaging

Appropriate packaging in the special promotion of gift merchandise for holiday sales is depicted in an illustrated booklet, "Setting the Stage for Holiday Merchandising," issued by the Hinde & Dauch Paper Co. The booklet will be sent on request.

Water Rectifier and Descaler

The new water rectifier offered by the General Scientific Equipment Co. is claimed to remove scale and rust from autoclaves, stills etc. No chemical water analysis is necessary nor is any mechanical or chemical treatment required. The unit is placed in the sterilizer or still, and is said to keep all inside surfaces of

Device for Preventing Rust

stills etc. clean, preventing foaming, priming, pitting and corrosion. The unit is guaranteed to give satisfactory service for at least a year. Size 1 for 8 quarts of water sells for $2; and size 2 for 30 quarts of water, for $4.


Beauty Conscious
Yes, they're both beauty-conscious —dealer and consumer. That's why every H-A opal jar and glass container is made with a two-fold sales purpose . . . beauty on the dealer's shelf, and beauty on the consumer's dressing table. Handsome H-A cosmetic jars and bottles suggest the beauty they contain.
HAZEL-ATLAS
GLASS COMPANY
WHEELING, W. VA.

THE ROUND TABLE –

Tribute Paid to C. Monroe Wiegand at Surprise Luncheon

As a tribute to C. Monroe Wiegand (who has been appointed director of purchases for Avon-Allied Products Inc.), for his unfailing courtesy and ability, a group of old friends in the industry tendered him a surprise luncheon at the Louis & Armand restaurant, New York, N.Y. July 12. The guests of honor were John A. Ewald, president of the company; Russel Rooks, George K. Graves Jr. and Wayne Hicklin.

Those who took part in the affair were H. Huber Boscowitz, Albert C. Burgund, Walter A. Conklin, Leonard Dalsemer, Joseph V. Gartlan, William H. Green, Harry B. Grubb, Frank Higgins, Walter J. Jamieson, C. R. Keeley, Walter Klaas, Dan R. Neary, Walter S. Nuckols, LeRoy R. Root, William H. Rowse, G. W. Sands, Leonard H. Schultes, Martin F. Schultes, Joseph B. Scott, R. B. Valerius and W. Lambert. The committee that arranged the affair was composed of William H. Green, Frank Higgins, C. R. Keeley and G. W. Sands.

A set of golf clubs in an attractive bag, a silver platter suitably engraved and a specially drawn picture to be hung in his office were presented to Mr. Wiegand on behalf of the group by William H. Green, who aptly expressed the feeling of the men who do business with Mr. Wiegand towards him. A tribute to him was also paid by John A. Ewald, president of the company who made a brief, serious and exceedingly interesting address.

Dr. Snell Receives SCI Gold Medal

Dr. Foster D. Snell received the Gold Medal for 1949 from the Society of Chemical Industry, London, on July 13. This is the second time in its 53 year history that this important medal has been awarded to an American.

Peggy Sage Abroad

Peggy Sage sailed for Italy July 13 on the S.S. Atlantic. She arrived in Naples on the 23rd and her tour included the principal cities of Italy and part of Switzerland. She will sail from Marseilles, France, on her return voyage.

Japan to Develop Foreign Trade in Cosmetics and Flavors

Manufacturers of cosmetics, flavors and soaps in Japan are sorely in need of raw materials according to Yishiji Nagase, manager of the Takasago Perfumery Co. Ltd. Tokyo, in an address at the second annual convention of the Japan Perfumery and Flavouring Assn. in Tokyo. In order to import needed raw materials it is essential that the Japanese manufacturers increase their exports of finished goods.

President Yoshijiro Togashi in his address pointed out that every effort must be made to raise the standards of finished products offered and increase the skill of the men in charge of manufacturing.

Guests were: Pr. Simon, J. Moziero & Cie, Paris; J. Allen Jr., Cornell Bros., San Francisco. The former represented Antoine Chiris Co. and the latter Dodge & Olcott, Inc. New York.

New officers of the association are: Yoshijiro Togashi, president; and directors: Mazu Ono, Teizo Tamura, Katunosuke Imai, Junkichi Matsuzawa, Hiroshi Otsuki, Shoji Hasegawa, Shogo Ito and Sankichi Tamasaki.

Frank Higgins pays a tribute to the guest of honor, Mr. Wiegand, and Avon Allied.

Russel Rooks, C. Monroe Wiegand and Prexy John Ewald, as they entered.

Mr. Wiegand displays the engraved platter and picture, which were presented after the golf set.

Toiletries Class Graduation Exercises

The graduation exercises of the City College Retail Drug, Cosmetic and Toiletries Program, S. B. Jeffries, coordinator, were held July 19 at 50 Rockefeller Plaza, New York, N.Y. Guest speakers were: Edgar S. Bellis, Fred Stevens, Dr. Curt Wimmer and Dr. Robert A. Love.

Stanley Park Tendered Surprise Bon Voyage Luncheon

Stanley Park, past president of the Foragers of America, who has been transferred to the position of Managing-Director of Luft-Tangee (London) Ltd. was tendered a surprise bon voyage luncheon at the Hotel Gotham, New York, N.Y. July 21. About sixty of his friends in the industry who have known and worked with him over the years since he has been with the George W. Luft Co. of Long Island City attended the luncheon.

John J. Driscoll was toastmaster; and Robert Arcularius, dean of the Foragers, Stanley Park Jr., Harry Haus, vice president and general manager of the George W. Luft Co., William Updegraff, the new sales manager of that company and Daniel Silver director of purchases were guests of honor. An onyx desk set with two pens and a Sessions clock were presented to Mr. Park on behalf of the group by Walter A. Conklin and C. R. Keeley, respectively; and an attractive cosmetic bag was given to Mrs. Park.

Mr. Park will have complete charge of manufacturing, purchasing, advertising and selling all Tangee products in the British Isles and countries serviced from the London company. He sailed for London July 27.

The affair was arranged by a committee composed of Walter A. Conklin, chairman; Albert J. Bradley, treasurer; W. Kyle Sheffield, C. R. Keeley, Arthur J. Connollu, Lee E. Lissner and E. Russell.

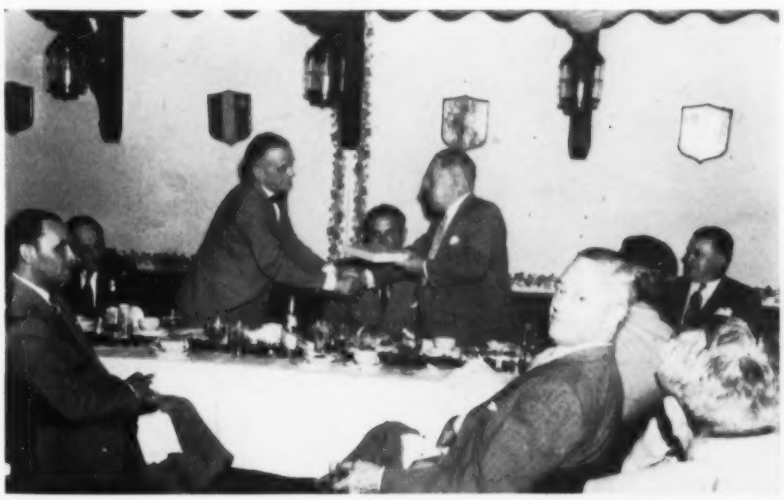
Business in Europe Improving Reports Charles C. Bryan

Charles C. Bryan, resident partner of Firmenich & Co. returned July 4 from the firm's annual directors' meeting at the headquarters of the company in Geneva, Switzerland. He was in Geneva for 15 days, flying both ways. The business atmosphere in Paris and Geneva, he reports, seemed substantially more optimistic than a year ago and the vitalizing effect of E. C. A. was evident in every way. European businessmen seemed much encouraged by the chain reaction of business activity produced broadly throughout western Europe by the E. C. A. program.

Aroscent Moves to Dobbs Ferry

Aroscent, Inc., has announced the removal of its office and laboratories in Brooklyn, to Main and Chestnut Sts., Dobbs Ferry, N.Y. The address is P.O. Box No. 269. The telephone number is Dobbs Ferry 3-5646.

An extensive manufacturing and sales program has been planned, using facilities at Dobbs Ferry, Montreal, Canada and Sydney, Australia. The Davis & Lawrence Co., Dobbs Ferry, will continue as export representative.



Stanley Park receives one of the farewell gifts presented by Walter Conklin on behalf of his old friends in the trade at a surprise luncheon given in his honor. Over 70 were present.

Shown above, left to right, first row, are: K. W. Harrison, J. A. Lacasse, Pierre Harang, Georges Liboiron and Andre Wick. Second row: J. LeDuc, Rene Martin, J. Duquette, P. Dion and A. Ratelle. The occasion is the sales convention held recently by Houbigant at Laurentide Inn, Ste. Agathe des Monts, Quebec, Canada.

Herbert Storfer Back After Four Months Study of Perfume

Herbert F. Storfer, vice president of Parfums Corday Inc., New York, N.Y., and son of Benson Storfer, president, has returned from a four months study of various aspects of the perfume industry in France. Three months were spent in essential oil study in Grasse.

Warner Adds to Research Staff

Dr. U. V. Solmssen has been appointed assistant director of research of William R. Warner & Co., Inc., New York, N.Y., and affiliated companies, it has been announced by Elmer Bobst. The Research department is divided into six divisions: Organic chemistry, pharmaceutical research, pharmacology and chemotherapy, cosmetic research, control department, and pilot plant.

Ritter Exhibits at San Francisco Convention

One of the more interesting exhibits at the Institute of Food Technologists' Convention, held July 11-14 at the Civic Auditorium in San Francisco, was that of F. Ritter & Co., Los Angeles, Calif.

Lebedeff Forms Parfums de Leon

Leon V. Lebedeff has announced the formation of his own company under the name Parfums de Leon, with general offices at 710 North Citrus Ave., Los Angeles 38, Calif.

Firmenich Appoints Mid-West Director

William G. Foley has been appointed to direct the Mid-West operation for Firmenich & Co., New

William G. Foley

York, N.Y. Mr. Foley has been with Firmenich for ten years, as assistant technical director of the New York laboratory for the past five years, and most recently has been advising on technical problems in all parts of the country. His headquarters will be in the company's Chicago offices, 612 North Michigan Ave.

Atlas Consolidates Divisions

The Atlas Powder Co., Wilmington, Del., has combined the functions and personnel of the Development Department with those of the Research Department. The new department will be designated as the Research and Development Department and will be under the supervision of K. R. Brown.

Life Membership and 21 Prizes Awarded at BIMS Golf Meeting

Perfect weather and an excellent course combined to make the member-guest golf tournament of the BIMS at the Winged Foot Country Club, Mamaroneck, N.Y. July 26 an unusually enjoyable affair. Some excellent scores were turned in and the dinner, which followed with entertainment under the direction of James Leyden who led the singing with his golden voice and rendered several solos, provided an abundance of good fellowship. Peter Forsman, chairman, introduced Martin Schultes, founder of the BIMS who presented the prizes which had been assembled by Harry Griffiths.

When Milton Kaylor, the first and only life member of the BIMS was introduced by Martin Schultes as such, he was greeted with a hearty round of applause. R. B. Valerius won a set of golf clubs.

Other prize winners were: Wallace Nuckols, G. Welp, Pel Livesy, Harry Heister, Alexander Henderson, Frank Higgins, Harry Griffiths, A. Green, Fred Butz, A. Beiler, Alec Dedrick, Albert Burgund, Louis Bezard, Wallace Undermach, Walter A. Conklin, James MacInnis, A. Graff, Paul Dunkel, Joseph Kelmberger and Robert Kramer.

N. C. Lanitis Publishes Another Book of Essays and Addresses

N. C. Lanitis, director of Lanitis Bros. Co., Ltd., Limassol, Cyprus has written a book in Greek and has another one almost ready for publication which he hopes to bring out this year. The book is a collection of essays and addresses and also is in Greek but he hopes to have an English version soon afterwards. Mr. Lanitis plans to visit the United States again some time in 1950.

DCAT Annual Meeting at Shawnee September 22-24

The fifty-ninth annual meeting of the Drug, Chemical and Allied Trades Section of the New York Board of Trade will open with an informal reception the evening of September 22, and will close with a group buffet luncheon September 25. The meeting will be held at the Shawnee Inn, Shawnee-on-Delaware, Pa.

New Compounds With Stabilizing Properties for Cosmetics

Two new compounds, dehydroacetic acid and its sodium salt appear to have excellent food and cosmetic stabilizing properties the Dow Chemical Co., Midland, Mich. has announced following laboratory studies and limited field tests. The materials which resulted from several years of intensive research are colorless, odorless and tasteless in all suitable concentrations, the company states.

Synfleur Scientific Laboratories to Close for Vacation

Following its annual custom, offices and laboratories of the Synfleur Scientific Laboratories, Inc., Monticello, N.Y., will be closed down completely from August 19 to September 6 to enable all employes to enjoy a vacation at the same time.

Packaging Machinery Manufacturers Meeting

The seventeenth annual meeting of the Packaging Machinery Manufacturers Institute will be held at the Edgewater Beach Hotel, Chicago, Ill., October 31-November 2.

Klinker Mfg. Co. Closes Down for Two Weeks' Vacation

The entire office and factory personnel of the Klinker Mfg. Co., Cleveland, Ohio, enjoyed a vacation from July 29 to August 15.

Richard Hudnut held the largest national sales conference in the history of the company, July 12 and 13, at the Hotel Astor, New York, N.Y. Over 125 salesmen and company executives attended the two-day sessions. The conference was in charge of Gerard S. Fowler.

Alcohol Storage Regulations Changed—Underground Tanks

Manufacturers of toilet preparations are no longer required to maintain a storeroom exclusively for specially denatured alcohol. According to the latest regulations of the Internal Revenue Bureau while users of specially denatured alcohol are still required to store it in a locked storage room or locked tank they can store other items with the alcohol. S. D. A. storage tanks may also be placed underground. As to labeling, as long as there are no other changes in the labeling Bureau approval on Form 1479-A covers any size package up to one gallon. Hence it is not necessary to resubmit a new application where the only revision in the label consists of a change in the contents to accommodate a new sized package.

BIMS of Boston Bang the Ball in Humid Heat

The BIMS of Boston held their second golf outing of the current season July 27 at the Weston Golf Club in Weston, Mass. Thirty stalwarts braved the unusually high temperature and humidity and registered their scores for the gruelling eighteen holes.

After the dinner, which was attended by forty-five members and their guests, W. E. Johnson, chairman, announced the following prize winners: 1st low net, E. E. Aldrich; 2nd low net, M. E. Nourse; 1st low net for guests, J. J. McCarthy; 1st kicker, G. O. Linberg; 2nd kicker, W. E. Johnson; 3rd kicker, H. C. Green.

Door prizes were won by H. J. Herrernan of Monsanto Chemical Co. and E. D. Bement of B. B. Chemical Co. The final outing this year is tentatively scheduled for late September and will be held at the Nashua Country Club, Nashua, N.H.

Marcelle Cosmetics Receives New A. M. A. Seal

The seal of acceptance of the committee on cosmetics of the American Medical Association has been awarded to Marcelle Cosmetics Inc., Chicago. The Marcelle company manufactures a line of hypo-allergenic cosmetics. The company was established about 75 years ago.

Newspaper Advertising for Cosmetics Up

According to the thirty-sixth annual report from the Bureau of Advertising of the American Newspaper Publishers Association, newspaper advertising for 1948 for toiletries amounted to $23,163,000, compared to $13,738,000 in 1931. This represents an increase of 71.5 per cent.

Nunnally Plans to Open Cosmetic Factory in Tuscaloosa, Ala.

L. G. Nunnally, Jr. announces that he and his associates are planning to open a small cosmetic factory in Tuscaloosa, Ala. to manufacture a medium priced line and a more expensive line of preparations.

Robert Gair Buys Southern Company

Robert Gair Co. has incorporated Fibre Board Container Corp., a subsidiary, which has acquired the assets and business of Fibre Board Container Co., with shipping container plants in Richmond and Martinsville, Va. The properties have been operated by the Donati family for over thirty years, and their acquisition by Gair expands its container business in an area not previously served, accessible to its new Southern Kraft mill.

Purely Personal

MITCHELL T. LYNCH has been re-appointed National sales manager of the toilet goods and household division of Park & Tilford.

FREDERICK J. BEYER, executive vice president of P. R. Dreyer Inc., New York, N.Y. is receiving congratulations on his advent as a grandfather. Bruce Daniel Beyer, born to his son Daniel A. Beyer and Mrs. Beyer July 15, as well as his mother are doing very well according to latest reports.

LINCOLN R. YOUNG, sales-manager for the Virginia Dare Extract Co. Inc., Brooklyn, N.Y., has been elected vice president and a member of the board of directors of the company.

WILLIAM VEALE has resigned as vice-president and general manager of Lever Brothers. Charles Luckman will serve the firm as general manager in addition to his present post as president.

S. B. PENICK, JR., has been elected a director of the Zonite Products Corp.

JOSEPH E. CONKLIN has been made sales representative for Antara Products, General Aniline & Film Corp.

RICHARD HUDNUT is offering fifty cash prizes of $100 each to sales clerks.

PRINCESS GOURIELLI was the guest of honor recently at a small dinner party given by Mr. and Mrs. Henri Kolin at their home in York Mills, Ontario.

NORMAN PHELPS has joined the C. C. Fogarty Co., Chicago, Ill. He will handle Dana Perfumes and Consolidated Cosmetics.

MARY FORMAN has been made treasurer of Mary Chess, Inc.

WALTER A. KRISBELL has been appointed sales manager for Cosmetic Laboratories, Inc. Long Island City. He was formerly with Richard Hudnut and John Robert Powers.

ADAM T. KROL has joined the staff of Sominion Products Inc., Long Island City, N.Y. as chief chemist and manager of the aromatic chemical division.

THOMAS H. CASSON has been elected vice president and controller of U.S. Industrial Chemicals Inc., New York, N.Y. He joined the company in 1941 and served as controller since 1945. He is an alumnus of the College of the Holy Cross and Columbia University.

PAUL B. SLAWTER, Jr., vice president of the House of J. Hayden Twiss, New York, N.Y. has been appointed director of public relations for the American Section of the Society of the Chemical Industry. Mr. Slawter is executive secretary to the Salesmen's Association of the American Chemical Industry; associate editor of the Consultant and editor of the Chemists' Club News. He is also a member of the advisory council of the American Institute of Chemists..

ARTHUR L. DOWLING has been appointed assistant secretary of Dodge & Olcott Inc., New York, N.Y. A veteran of six years service as Lieutenant Commander in the United States Navy and holder of the Navy Cross, Mr. Dowling joined the company in 1946 and formerly acted as assistant sales manager and advertising director. In addition to his other duties Mr. Dowling edits the interesting "D & O News" a new house organ.

A fashion trend, according to *Women's Wear Daily*, is rose red for Fall. WOODBURY now offers rose red lipstick.

CHARLES H. SOMMER, JR., and DAVID L. EYNON have been appointed assistant general managers of the Organic Chemicals Division of Monsanto Chemical Co.

JOSEPH W. SMITH has joined the sales staff of the Kraft Chemical Co. He will concentrate on the Middle-West.

LIP-STAE has been reduced in price.

OSCAR KOLIN flew to Paris on July 15. He will spend some time in Grasse and from there will travel to England, Italy and Switzerland. After a brief vacation on the coast of Brittany with his wife and two children, Mr. Kolin will accompany Mme. Rubinstein on a business trip to Brazil and Argentina, returning to New York in October.

WILLIAM T. FRENCH has joined the research department of Curtis Publishing Co. He will supervise the food, drug and toilet goods section.

De Heriot of Hollywood announced the appointment of MATT L. ROGERS as secretary and treasurer.

The name of PERCY MAGNUS has been put forward for mayor of New York.

Obituary

William H. Sheffield

William H. Sheffield, president and general manager of Innis, Speiden & Co. died of a heart attack in Allenhurst, N.J., July 25. He was born August , 1874 in Mahwah, N.J.

Grandson of the founder of Sheffield Farms and a nephew of L. D. Halsey, another of the founders, Mr. Sheffield joined the Sheffield Farms Co. in 1895. He was vice-president and director until 1924 when that company joined with National Dairy Products. He became a director of Innis, Speiden & Co. in 1912 and was president and general manager from 1926 until he died. He also was president of the Jensen Machinery Co., vice-president and Chairman of the executive committee of Flako Products.

He is survived by his wife, Lizzie (Foote) Sheffield of Ridgewood, his

William H. Sheffield

sons, William H. Sheffield, Jr., of Oxford, N.J., and Halsey Foote Sheffield of Ridgewood, his brother Bertram I. Sheffield of Oxford and by six grandchildren.

Mrs. Ida F. McE. Zeluff

Mrs. Ida F. McE. Zeluff, wife of Irvin Zeluff of Van Dyk & Co. Inc.

died July 25 at her home in South Ozone Park, N.Y. following a long illness. Besides her husband she is survived by a son and a grandson.

Samuel Alsop Sr.

Samuel Alsop Sr., founder and president of the Alsop Engineering Co., Milldale, Conn., died July 7 at his summer home in Madison, Conn., following a heart attack.

He was born at Delaware Water Gap, Pa. and after completing his formal education continued his studies with the New York Electrical School from which he was graduated. At an early age he showed inventive talent and at 24 he had patented his first filter. The same year he organized the Alsop Engineering Co. in New York City. From quarters in Water Street he ran his little business as a one man affair but before long he was forced to move to larger quarters in New York and finally in the early thirties the concern moved its factory and principal office to Milldale, Conn. Under wise and enterprising management the business grew. Mr. Alsop continually expanded the company's manufacturing facilities and the line of liquid processing equipment which now includes filter, mixers, pumps and stainless steel tanks in a wide range of capacities and designs.

Mr. Alsop was affiliated with a New York City lodge of A.F. and A.M. He is survived by his widow and three sons, Samuel Alsop Jr., Edmund Bell Alsop and Carter Griscolm Alsop of Meriden, Conn.

Samuel Alsop Sr.

and a sister, Miss Beatrice Alsop of New York, N.Y.

Mr. Alsop was a genius in many ways and in the early years particularly, he created ideas that won favor among users of equipment because of their efficiency and practical nature. In addition to that he had skill as an organizer and business man. He was the holder of numerous patents and was widely known throughout the United States and largely in South America and Europe where branch offices or representatives of his company were to be found in the major cities. From a one man concern Mr. Alsop built his business into an international enterprise employing directly over 130 persons. To his other talents he had the gift of making and holding friends, all of whom will miss his cheery, energetic personality.

Grant H. Heidbreder

Grant H. Heidbreder, vice president and general manager of Helfrich Laboratories, Inc., Chicago, Ill. died July 18 at St. Josephs hospital. He is survived by two sons, a sister and a brother.

David A. Schulte

David A. Schulte, chairman of the board of Park & Tilford Inc. died July 29 at the age of 76 years, at his home in Homdel, N.J. He is survived by his sons David, Arthur and John, his wife Mrs. Carrie E. Koehler and two brothers Julius and Fred Goldberg. Mr. Schulte was best known for the chain of tobacco stores he built up.

Selected Book List

CONDENSED CHEMICAL DICTIONARY. *Compiled and edited by the Editorial Staff of the Chemical Engineering Catalog, under the editorial direction of Francis M. Turner.* Lists 18,000 chemicals and their synonyms, formulas, colors, properties, constants, specific gravities, melting and boiling points, solubility in water, ether and other solvents, preparation and ingredients, with process—indispensable for all who have occasion to work with chemical products or raw materials. 756 pp. $12.00 postpaid.

THE ESSENTIAL OILS, VOL. I. *By Ernest Guenther.* Covers (1) The Origin and Development of the Essential Oil Industry; (2) The Chemistry and Function of Essential Oils in Plant Life; (3) The Products of Essential Oils: Methods of Distillation, Enfleurage, Maceration and Extraction with Volatile Solvents: (a) Distillation of Essential Oils, (b) Natural Flower Oils, (c) Concentrated, Terpenless and Sesquiterpenless Oils; (4) The Examination and Analysis of Essential Oils, Synthetics and Isolates. Indispensable for up-to-date information on the chemistry, production, and analysis of essential oils. 448 pp. $6.00 postpaid.

THE ESSENTIAL OILS, VOL. II. *By Ernest Guenther.* Just off the press. This second volume gives data on several hundred of the more important constituents of essential oils. Describes the structural formulas, occurrence, methods of isolation and identification, the physico-chemical properties of these compounds. Essential oil constituents grouped according to the class of compound to which they belong: Hydrocarbons, Alcohols, Esters, Kezones, Lactones, etc. Maison G. De Navarre says: "In no other work is the treatment of essential oil constituents so complete and up-to-date." 852 pages, illustrated and indexed. $10.00 postpaid.

SYNTHETIC FOOD ADJUNCTS. *By Morris B. Jacobs,* Senior Chemist, Chief of the Chemical Bureau of Foods & Drugs, Dept. of Health, City of New York. Comprehensive handbook of information needed to make and use the colors, flavors and other synthetic adjuncts employed in the food industries. Full directions for their mixing, blending and formulation from the many hundreds of individual chemical compounds that enter into food production—including flavoring substances, coloring matters, vitamins, vitagens, preservatives, antioxidants, stabilizers, emulsifiers, etc. 335 pages. $5.50 postpaid.

THE CHEMISTRY AND MANUFACTURE OF COSMETICS. *By Maison G. Navarre.* A new kind of cosmetic book—that points the surest way to success in making any product and undertaking any problems. Everyone of its hundreds of formulas—for cosmetics of all types and all purposes—has been produced, tested, and proved to work in the author's own laboratory. 745 pages. $9.00 postpaid.

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MARKET REPORT

Downward Trend in Aromatic Chemicals

BARRING any unforeseen developments, market conditions suggest that glycerin prices will be maintained at current levels over the balance of the year. In fact the late drop of 4 to 9 per cent in wholesale soap prices should make producers more determined than ever to hold glycerin prices at current selling levels. Production of crude glycerin was virtually all sold for July, and because of current conditions surrounding the market, non-refiners were reluctant to offer material for August. Some 500 tons of glycerin were offered from Russia but the material, in the form of saponification, was quoted at a price far too high to attract any attention here. Sizeable quantities are obtainable in Argentina, but again, the cost of this material is said to be far out of line with domestic selling schedules. Although production of synthetic glycerin reached its capacity for the first time since it was made commercially available in August last year, demands were sufficient to absorb the total output of both the natural as well as the synthetic material.

Prices on several of the chemical solvents turned lower as the result of competitive conditions. The decline in butyl alcohol and butyl acetate did not come upon the trade as much of a surprise. The downward trend started back in April and makers are only now getting their schedules more in line with earlier predictions. Dibutyl phthalate was reduced a full cent a pound and the situation in ethyl acetate became more competitive as some makers attempted to cut into methylethyl ketone sales. Dibutyl phthalate is used as a solvent for perfume oils.

The essential oil industry is looking forward to a period of greater stability, but with world economic conditions highly upset, it is extremely difficult to place confidence in current predictions.

With consumer inventories having been fairly well depleted it is apparent that buyers are becoming more concerned over world events than ever before. Allowing inventories to run too close to demand may prove dangerous as a general policy under present circumstances although in the case of some oils new production may warrant further delays in actual commitments.

Because of ECA allocations, exportation of some oils to European countries has been resumed, thus opening up an outlet for articles that would otherwise prove a rather disturbing influence upon the market position.

The action of mint oils has proved quite favorable despite the impending new crop production. Stocks of old crop oil have been fairly well cleared as the result of some fair size export shipments. However, the situation bears close watching since ideal growing weather has been noted in the Mid-West and advices from the Pacific coast give promise of a rather generous crop.

HIGH IMPORT GAIN OVER LAST YEAR

First quarter 1949 imports of essential oils amounted to 2,168,640 pounds, a gain of 14 per cent over imports in the same three months of last year. Oils recording the greatest import gain as against the same quarter a year ago were anise from China and Hong Kong; bois de rose from Mexico and Brazil; camphor oil from Japan; citronella from Guatemala, Honduras, Ceylon, Netherlands Indies, China, Leeward and Windward Islands, Dominican Republic and Taiwan; and sandalwood from Canada, Mexico, Jamaica, Haiti, Dominican Republic, Leeward and Windward Islands, Trinidad and Cuba.

Among the coal chemicals, technical and USP grades of cresol were slashed 2¼ cents per pound. Other changes in the group included reductions in orthocresol and the xylenol fractions. The decline in orthocresol amounted to 4½ to 4¾ cents a pound.

Demand for alcohol remained slow at the higher prices established on July 1. On June 15 some producers announced that they would advance the base price of alcohol to 31 cents a gallon July 1 but actually the advance only amounted to 8 cents a gallon to 29 cents in view of the generally unsatisfactory conditions that prevailed in the market.

The general downward tendency in aromatic chemicals has proved rather surprising since these commodities for the most part were maintained at fairly reasonable price levels during and immediately after the war period. Supply of thymol has caught up with the demand. Makers are in a position to make prompt deliveries against spot purchases.

The real difficulty in menthol has been an absence of consumer demands. Prices here declined approximately 50 cents a pound over the past month in the face of a good supply and a quiet demand. Since stocks held by dealers and speculators cost less than current asking prices it is quite possible the downward trend will be extended before the market becomes stabilized.

Summer items, namely sodium benzoate, citric acid, and the tartrates, were moving in excellent volume. Makers of sodium benzoate expressed considerable optimism regarding the outlook for late August and September. Occasional odd lots of benzoate were to be had at slightly below the market but makers did not seem at all concerned over the general supply picture.

PRICES IN THE NEW YORK MARKET

(Quotations on these pages are those made by local dealers, but are subject to revision without notice)

ESSENTIAL OILS

All prices per lb. unless otherwise specified

Almond Bit, FPA per lb.	4.00@	4.75
Sweet True	.80@	1.00
Apricot Kernel	.50@	.58
Amber, rectified	Nominal	
Angelica Root	150.00@	190.00
Anise, U. S. P.	.75@	.95
Aspic (spike) Span.	1.00@	1.65
Avocado	1.10@	1.50
Bay	1.25@	2.00
Bergamot	4.00@	4.50
Artificial	2.10@	3.00
Birch, sweet	2.50@	7.50
Birchtar, crude	1.00@	1.50
Birchtar, rectified	4.10@	4.75
Bois de Rose	2.75@	3.05
Cade, U. S. P.	.40@	.65
Cajeput	1.85@	2.25
Calamus	20.00@	25.00
Camphor "white" dom.	.40@	.60
Cananga, native	2.00@	2.65
Rectified	2.85@	3.25
Caraway	5.00@	5.50
Cardamon	48.50@	52.00
Cassia, rectified, U. S. P.	1.90@	2.30
Cedar leaf	1.70@	1.80
U. S. P.	2.00@	2.25
Cedar wood	.40@	.55
Celery	15.00@	16.00
Chamomile Roman	250.00@	280.00
Cinnamon bark oil	30.00@	55.00
Citronella, Ceylon	.80@	1.00
Java type	1.35@	1.65
Cloves, Zanzibar	1.30@	1.50
Coriander	30.00@	38.00
Imitation	8.50@	12.00
Croton	4.80@	5.25
Cumin	6.75@	7.40
Dillweed	7.50@	8.50
Erigeron	4.85@	5.25
Eucalyptus	.65@	.90
Fennel, Sweet	2.85@	3.25
Geranium, Rose, Algerian	10.50@	12.00
Bourbon	13.00@	14.50
Turkish	6.50@	9.00
Ginger	13.25@	15.00
Guaiac (Wood)	1.90@	2.50
Hemlock	2.00@	2.75
Laurel leaf	10.00@	12.50
Juniper Berry	3.25@	5.00
Lavandin	1.10@	1.75
Lavender, French	2.45@	4.60
Lemon, Calif.	2.85@	3.00
Italian	2.65@	5.00
Lemongrass	1.75@	2.00
Limes, distilled	7.00@	7.60
Expressed	7.75@	10.00
Linaloe	2.75@	3.10
Lovage (oz.)	11.00@	
Marjoram	3.75@	4.80
Neroli, Bigarde P.	85.00@	95.00
Petale, extra NF	130.00@	185.00
Nutmeg	3.75@	4.50
Ocotea Cymbarum	.48@	.75
Olibanum	4.85@	10.50
Opopanax	30.00@	37.00
Orange, Florida	.55@	1.00
Brazilian	.85@	1.25
Calif., exp.	.75@	1.00
Orris Root, abs. (oz.)	80.00@	100.00
Artificial	36.00	Nom'l
Pennyroyal, Amer.	4.10	Nom'l
European	2.50@	3.00
Peppermint natural	5.65@	6.00
Redistilled	6.10@	6.50
Petitgrain	2.50@	3.00
Pimento Berry	4.50@	5.10
Pinus Sylvestris	2.50@	2.65
Pumilio	3.00@	3.50
Rose, Bulgaria (oz.)	25.00@	56.00
Synthetic, lb.	10.80@	16.00
Rosemary, Spanish	.85@	1.10
Sage, Spanish	1.25@	2.00
Sage, Dalmation	2.85@	3.35
Sandalwood, N. F.	13.75@	14.50
Sassafras, artificial	.50@	.75
Snake root	18.75@	20.00
Spearmint	3.50@	4.10
Thyme, red	2.15@	2.85
White	2.40@	3.35
Valarian	30.00@	55.00
Vetivert, Haitian	11.00@	13.00
Bourbon	12.50@	15.00
Wintergreen	4.00@	14.50
Wormseed	3.50@	3.75
Ylang Ylang, Manila	38.00@	43.00
Bourbon	7.00@	11.25

(Continued on page 171)

(Continued from page 169)

TERPENELESS OILS

Bergamot	9.50@	13.00
Grapefruit	48.00@	58.00
Lavender	7.25@	10.00
Lemon	35.00@	41.00
Lime, ex.	75.00@	85.00
Distilled	52.00@	60.00
Orange sweet	70.00@	98.00
Peppermint	11.00@	12.00
Petitgrain	6.00@	7.25
Spearmint	7.00@	8.60

DERIVATIVES AND CHEMICALS

Acetaldehyde 50%	1.90@	2.75
Acetaphenone	1.50@	1.75
Alcohol C 8	2.40@	3.00
C 9	14.00@	
C 10	2.40@	3.00
C 11	14.50@	
C 12	2.40@	2.85
Aldehyde C 8	9.00@	11.00
C 9	17.50@	19.00
C 10	7.00@	8.50
C 11	19.25@	22.00
C 12	14.00@	16.00
C 14 (Peach so-called)	7.00@	8.75
C 16 (Strawberry so-called)	6.25@	7.10
Amyl Acetate	.55@	.75
Amyl Butyrate	.85@	1.10
Amyl Propionate	1.00@	1.60
Amylcinnamic Aldehyde	2.55@	3.00
Amyl Formate	1.00	1.25
Amyl Phenyl Acetate	3.75@	4.10
Amyl Salicylate	.85@	1.00
Amyl Valerinate	1.75@	2.15
Anethol	.80@	.95
Anisic Aldehyde	2.50@	3.00
Benzophenone	1.50@	1.85
Benzyl Acetate	.70@	.85
Benzyl Alcohol	.80@	.90
Benzyl Benzoate	1.00@	1.20
Benzyl Butyrate	1.70@	2.15
Benzyl Cinnamate	3.35@	4.00
Benzyl Formate	2.00@	2.30
Benzyl-Iso-eugenol	9.25@	10.00
Benzyl Propionate	1.60@	2.20
Benzylidene Acetone	2.00@	2.75
Bromstyrol	5.75@	6.35
Butyl Acetate, normal	.14½@	.15½
Cinnamic Alcohol	3.00@	3.75
Cinnamic Aldehyde	1.15@	1.35
Cinnamyl Acetate	3.75@	4.80
Citral, C. P.	3.75@	4.35
Citronellol	3.40@	4.10
Citronellyl Acetate	3.95@	5.40
Coumarin	2.75@	3.00
Cuminic Aldehyde	7.75@	10.00
Diethylphthalate	.35@	.43
Dimethyl Anthranilate	5.00@	5.75
Ethyl Acetate	.26@	.35
Ethyl Benzoate	.75@	.90
Ethyl Butyrate	.70@	.85
Ethyl Capronate	3.40@	3.85
Ethyl Cinnamate	2.45@	2.80
Ethyl Formate	.65@	.75
Ethyl Propionate	.75@	1.00
Ethyl Salicylate	.85@	1.00
Ethyl Vanillin	6.75@	6.80
Eucalyptol	1.70@	2.25
Eugenol	1.60@	2.25
Geraniol, dom.	3.25@	3.75
Geranyl Acetate	2.75@	3.50
Geranyl Butyrate	5.25@	6.10
Geranyl Formate	5.60@	7.00
Guaiac Wood Acetate	6.00@	6.75
Heliotropin, dom.	3.00@	3.85
Hydrotropic Aldehyde	6.30@	6.85
Hydroxycitronellal	6.75@	8.50
Indol, C. P.	18.25@	20.00
Ionones		
Beta	8.25@	9.00
Methyl	4.50@	6.30
Iso-borneol	1.55@	1.70
Iso-butyl Acetate	1.00@	1.75
Iso-butyl Benzoate	1.10@	2.00
Iso-butyl Salicylate	2.15@	3.00
Iso-eugenol	3.35@	3.85
Iso-safrol	2.00@	2.80
Linalool	4.50@	7.00
Linalyl, Acetate 90%	4.35@	5.25
70%	4.00@	5.10
Linalyl Benzoate	10.50@	
Linalyl Formate	10.75@	12.00
Linalyl Propionate	9.50@	11.25
Menthol	10.50@	11.00
Methyl Acetophenone	1.35@	1.75
Methyl Anthranilate	2.40@	2.65
Methyl Cinnamate	1.60@	2.25
Methyl Benzoate	.60@	1.00
Methyl Heptenone	6.25@	7.00
Methyl Heptine Carbonate	45.00@	60.00
Methyl Naphthyl Ketone	3.25@	4.75
Methyl Phenylacetate	1.30@	1.85
Methyl Salicylate	.40@	.45
Musk Ambrette	5.40@	5.85
Ketone	4.95@	5.20
Xylene	1.60@	1.85
Neroline (ethyl ether)	2.00@	2.35
Paracresyl Acetate	2.15@	2.75
Paracresyl Methyl Ether	2.40@	3.00
Paracresyl Phenyl-acetate	5.00@	5.60
Phenylacetaldehyde 50%	2.75@	3.25
100%	4.10@	4.65
Phenylacetic Acid	1.75@	2.25
Phenylethyl Acetate	1.70@	2.50
Phenylethyl Alcohol	1.50@	1.80
Phenylethyl Anthranilate	16.00@	

(Continued on page 173)

(Continued from page 171)

Phenylethyl Butyrate	3.55@	4.35
Phenylethyl Propionate	3.35@	4.40
Phenylethyl Salicylate	4.20@	4.80
Phenylethyl Valerianate	5.60@	6.00
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(guaiacol)	3.00@	3.05
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Yellow, refined	.61@	.63
Bismuth, subnitrate	2.30@	
Borax, crystals, carlot ton	61.25@	81.25
Boric Acid, U. S. P., ton	129.00@	133.50
Calcium, phosphate	.08@	.08¾
Phosphate, tri-basic	.0660@	.0730
Camphor pwd., domestic	.72@	.74
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Amber	.12@	.13¾
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Sumatra	.45@	.52
Gum Galbanum	.95@	1.00
Gum Myrrh	.38@	.42
Henna, pwd.	.25@	.27
Kaolin	.05@	.07
Labdanum	5.00@	7.00
Lanolin, hydrous	.29@	.30
Anhydrous	.31@	.32
Magnesium, carbonate	.11@	.12¼
Stearate	.35@	.37
Musk, ounce	25.00@	55.00
Olibanum, tears	.26@	.35
Siftings	.11@	.13
Orange Flower Water, gal.	1.75@	2.25
Orris Root, Italian	.24@	
Paraffin	.05¾@	.07¼
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Petrolatum, white	.06¾@	.08⅜
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Rose flowers, pale	.40@	.50
Rose Water, jug (gal.)	2.25@	3.00
Rosin, M. per cwt.	7.58@	
Salicylic Acid	.40@	.42
Saponin No. 1	2.45@	
Silicate, 40°, drums, works, 100 pounds	1.00@	1.35
Sodium Carb. 58% light, 100 pounds	1.60@	2.70
Hydroxide, 76% solid, 100 pounds	3.05@	4.20
Spermaceti	.35@	.37
Stearate Zinc U.S.P.	.34@	.36
Styrax	1.40@	1.85
Tartaric Acid	.34½@	.35
Tragacanth, No. 1	2.85@	3.40
Triethanolamine	.21½@	.22½
Violet Flowers	1.80@	1.85
Zinc Oxide, U.S.P. ctns.	.13¼@	.13½

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Cocoanut, crude, Atlantic ports, tanks	.16@	.16½
Corn, crude, Midwest, mill, tanks	.11@	.11¼
Corn Oil, refined, tanks	.14@	.14¼
Cottonseed, crude, tanks	.09¾@	.10
Grease, white	.04¾@	.04⅞
Lard, Chicago	.11@	.11¼
Lard Oil, common, No. 1 drums	.09¾@	.10¼
Palm Congo drums	.14½@	
Peanut, refined, tanks	.18¼	Nom'l
Red Oil, single distilled drums	.11½@	.12
Stearic Acid Triple Pressed	.15¾@	
Double Pressed	.13½@	.14
Tallow, acidless, drums	.10@	.10½
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ROSOTTONE

Rosottone, Dow's newest aromatic specialty, has the answer. Based on an entirely new chemical approach, Rosottone makes the highly valued "natural" Rose Otto note available at a price that brings it within reach for even the most inexpensive perfumes.

◇ Rosottone, even if used straight, will readily replace the natural Otto in all blends for cosmetics and soaps. For luxury perfumes, Rosottone Supreme is recommended.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

DOW

Aromatics

INDISPENSABLE TO THE CREATIVE PERFUMER

EXALTOLIDE

Lactone of 14, HYDROXYTETRADECANE, 1, CARBOXYLIC ACID

EXALTOLIDE is a vital material, more than just a fixative. Minute quantities amplify and diffuse the odor complex of a composition. In effect it exerts a catalytic action—exalting in addition to rounding and fixing your perfume. EXALTOLIDE completes the perfect composition.

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